

A TAXONOMIC REVISION OF THE EUROPEAN SPECIES
OF THE GENUS PARAPHIDIUS STARY, 1958

(Hymenoptera: Braconidae, Aphidiinae)

PETR STARY

(Institute of Entomology, Czechoslovak Academy of Science, Praha)

The present study represents the further part of the elaboration of the European *Aphidiinae* and includes the revision of the genus *Paraphidius* Stary. This genus, including the parasites of the *Lachnidae*, similarly as all the group of *Aphidiinae* needs such a revision as the existing keys are too incomplete and they could be hardly used for certain kind of work. The author believes that many further new species will be included in the cited genus in case that more extensive material will be available. This paper is, therefore, further point in the taxonomic work.

It must be added that the generic and subgeneric classification of *Aphidiinae* has a little changed in accordance with the present author's studies. This problem will be solved in another paper of the author.

The nomenclature of aphids in this paper is in accordance with that used by Börner (1952); all the previous records were changed with regard to the nomenclature applied here.

The entire material used for this work is deposited for the most part in the author's collection in the Institute of Entomology, Czechoslovak Academy of Science, in Praha.

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Genus *Paraphidius* Stary n. status

Aphidius Nees (partim): Nees, 1818, Nov. Act. Acad. L. C. p. 302. — Haliday, 1833, 1834, Ent. Mag. Vol. 1, 2. — Nees, 1834, Hym. Ichn. aff. Mon. 1: 15. — Ratzeburg, 1848, Ichn. d. Forstins, 2: 57—58. — Marshall, 1896, in André Spec. Hym. Eur. d'Algérie 5: 557—559. — Dalla Torre, 1898, Cat. Hym. 4: 4—5. — Marshall, 1899, Trans. ent. Soc. London (1899): 32—33. — Szépligeti, 1904, in Wytsman Genera insectorum 22: 185.

- Aphidius* Nees (*Coelonotus* Förster): Thomson C. G., 1895, Opusc. ent. 20: 2331—2334.
- Aphidius* Nees (*Paraphidius* Starý): Starý, 1958, Acta Faun. Ent. Mus. Nat. Pragae 3: 91 (n. name for *Protaphidius* Ashm. auct. non sensu Starý, 1958; *Aphidius californicus* design. subgenotype).
- Aphidius* Nees (*Protaphidius* Ashmead): Hincks, 1943, Entomologist, London 76: 7. — Smith C. F., 1944, Ohio State Univ. Contr. Zoo. Ent. No 6: 37. — Muesebeck and Walkley, 1951, in U. S. Dept. Agr. Monogr. 2: 92.
- Coelonotus* Förster: Fahringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 240, 241 (*Coelonotus laricis* Haliday incorrectly design. as genotype). — Szépligeti, 1904, in Wytzman Genera insectorum 22: 185.

Genotype: *Aphidius californicus* Ashmead, 1888 (design. by Starý, 1958).

Description: Head transverse, wider than thorax at tegulae; face broad; eyes large, hemispherical, strongly prominent laterally; width of head subequal to twice transfacial line. Maxillary palpi 4-segmented, labial 3-segmented. Mandibles bidentate—with small tooth before apex. Antennae filiform, with various number of segments (16-30). Mesoscutum with more or less distinct notaulices. Fore wing: Pterostigma triangular, strongly sclerotized. Metacarp distinctly developed, always longer than width of pterostigma. Radial vein distinct, with two abscissae. Pterostigmal cell incomplete. Radial and median cell confluent and completed by fused intermedian and median veins on the lower side and by interradian vein on the external side. Hind wings with complete basal cell; venation except for costal and subcostal veins mostly colourless. Propodeum: Rami of the central carina more or less developed, sometimes more or less effaced in the longitudinal part; completing more or less concave wide central areola. Abdomen: Lanceolate to sublanceolate. Ovipositor sheaths of various shape, more or less curved upwards to nearly straight.

General distribution: Palearctic, Nearctic and Oriental regions.

Bionomics: Parasites of aphids (Fam. *Lachnidae*). Pupation inside parasitised aphid.

Note: This genus, including parasites of *Lachnidae*, has been classified as the subgenus (i.e. „*Protaphidius* Ashm.“ or „*Coelonotus* Först.“) of *Aphidius* by various authors (see Starý, 1958, l.c.). According to the present author's opinion it seems to be necessary to keep all the up to date known subgenera of *Aphidius* as valid genera of *Aphidiinae* (Starý, in litt.).

Fossils

No fossil specimen belonging to the genus *Paraphidius* is known. According to the original description only *Aphidius maximus* Théobald, 1937 (Les insectes fossiles des Terrains oligocènes de France, p. 307, fig.) described from the oligocene period from France could be included in this genus.

KEY TO THE SPECIES (♀♀)

- 1 Antennae 28—30-segmented. (Parasite of *Todolachnus abieticola*)
- 4. *P. grossus* (Fahringer)
- Antennae with less number of segments, usually no more than 22-segmented 2

- 2 (1) Flagellar segments (except for 1st and 2nd that are sometimes yellowish or brownish on the lower side) entirely black 4
 — Flagellar segments (except for the 1st and 2nd that are sometimes yellowish or brownish on the lower side) black; apical part of the flagellum more or less whitish; apical segment obscured 3
- 3 (2) Mesoscutum elevated above prothorax and covering it when viewed laterally. Head black; face, clypeus, mouthparts rufous brown. Antennal segments 13—20 whitish. Tergite 1 black; tergite 2 dark brown; tergite 3 with large rufous brown spot on each side, remaining tergites dark brown. 2. *P. albiflagellaris* n. sp.
 — Mesoscutum elevated above prothorax without covering it when viewed laterally. Head yellow rufous; upper part (frons partially, occiput and upper part of temples) black. Antennal segments 16—20 whitish. Tergite 1 dark brown, tergite 2 brown, following tergites yellow rufous with brown apexes; towards the apex of abdomen rufous brown 5. *P. infulatus* (Haliday)
- 4 (2) Ovipositor sheaths wide, stout, only slightly narrowed to the apex and slightly curved upwards (Figs. 33, 34, 36, 38, 40, 41, 43, 45, 47, 48, 49) 7
 — Ovipositor sheaths of other shape (Figs. 42, 44, 46) 5
- 5 (4) Antennae 16—17-segmented. Mesoscutum falling comparatively vertically to the prothorax without covering it when viewed laterally (Fig. 32). Central areola on propodeum very large, rounded (Fig. 2). Ovipositor sheaths very slender, only slightly curved upwards, strongly narrowing to the apex (Fig. 44). (Parasite of *Schizolachnus*) 13. *P. praevisus* (Gaut. & Bonn.)
 — Antennae with greater number of segments. Mesoscutum strongly elevated above prothorax and covering it when viewed laterally (Fig. 31). Central areola on propodeum of other shape (Fig. 5, 8). Ovipositor sheaths of other shape (Figs. 42, 46) 6
- 6 (5) Central areola on propodeum greater (Fig. 5). Tergite 1 in the basal half — before the spiracular tubercles — strongly curved (Fig. 24). Ovipositor sheaths slender, stout, strongly curved upwards, parallel-sided, bluntly pointed at apex (Fig. 42) 10. *P. pictus* (Haliday)
 — Central areola on propodeum smaller (Fig. 8). Tergite 1 in the basal half — before the spiracular tubercles — only slightly curved (Fig. 26). Ovipositor sheaths slender, weaker, less curved upwards, narrowed at the base and at the apex (Fig. 46) 7. *P. laricis* (Haliday)
- 7 (4) Rami of the central carina on propodeum more or less developed, more or less completing the large central areola that differs strongly by its declivity from the neighbourhood (Figs. 1, 3, 7, 9, 10, 12, 13, 14). Gena narrower than half of transverse eye-diameter 8
 — Rami of the central carina on propodeum very little developed, sometimes hardly differing from the slightly rugose neighbourhood, completing large central areola that does not differ nearly by its declivity from the neighbourhood (Fig. 6). Gena as wide as half of transverse eye-diameter (Fig. 39) 8. *P. maculolachni* n. sp.
- 8 (7) Tergite 1 with lateral impressions beyond spiracular tubercles and strongly dilating towards the apex; twice (or nearly so) as wide as at spiracles; comparatively flat beyond spiracular tubercles, with central longitudinal impression and with one tuberculiform elevation on each side (Figs. 18, 20, 29) 9
 — Tergite 1 beyond prominent spiracular tubercles without or only with very small lateral impression; less dilating towards the apex and distinctly narrower at apex than wide at spiracles; comparatively convex beyond spiracular tubercles (Figs. 19, 21, 27, 30) 11
- 9 (8) Antennae 18—20-segmented 14. *P. silvestris* n. sp.
 — Antennae (21)—22-segmented 10
- 10 (9) Pterostigma brown, yellowish at base. Propodeum with very large and very concave central areola (Fig. 3) 11. *P. pini* (Haliday)
 — Pterostigma brown. Propodeum with less concave and smaller central areola (Fig. 7) 1. *P. abietis* (Marshall)

- 11 (8) Mesoscutum elevated above prothorax, without covering it when viewed laterally 12
 — Mesoscutum strongly elevated above prothorax and covering it when viewed laterally 12. *P. pinicollis* n. sp.
 12 (11) Thorax black; prothorax brownish to brown yellow. Tergites 1 and 2 brownish, the rest of abdomen brown black. Antennae 20—21-segmented. 6. *P. juniperorum* n. sp.
 — Thorax with more distributed yellow rufous or brownish coloration. Abdomen yellowish and brown. Antennae 18—19- or 19—20-segmented 13
 13 (12) Prothorax yellow rufous. Mesoscutum yellow rufous, very rarely a little obscured on the lobes. The rest of thorax yellow rufous or obscured to black. Antennae 18—19-segmented. Tergite 1 somewhat dilating beyond spiracular tubercles towards the apex (Fig. 21) 3. *P. cupressobii* n. sp.
 — Prothorax yellow. Mesoscutum black; on the base in the neighbourhood of notaulices and sometimes throughout the effaced notaulices on the disc of mesoscutum yellowish to light brown. Mesopleurae beneath tegulae slightly yellowish, the rest of thorax black. Antennae 19—20-segmented. Tergite 1 nearly parallel-sided (Fig. 27) 9. *P. piceaecollis* n. sp.

1. *P. abietis* (Marshall), n. comb.

Aphidius abietis Marshall, 1896, in André Spec. Hym. Europe d'Algérie 5: 565—566 (♀ descr., Loc.: England; host). — Dalla Torre, 1898, Cat. Hym. 4: 5 (sine descr., Loc.: England; host). — Marshall, 1899, Trans. ent. Soc. London 1899: 40 (♀ descr., Loc.: England; host). — Szépligeti, 1904, in Wytsman Genera insectorum Fasc. 22: 185 (sine descr., Loc.: England; host). — Schimitschek, 1936, Z. ang. Ent. 22: 564 (sine descr., Loc.: Austria; host). — Kloet & Hincks, 1945, Check list of Brit. insects (sine descr., Loc.: England). — Starke, 1956, Nat. Lusatica 3: 91 (sine descr., Loc.: Germany).

Coelonotus abietis (Marshall): Fahringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 242 (♀ descr., Loc.: North and Central Europe; host). — Schimitschek, 1944, Forstinsekten d. Türkei u. ihre Umwelt, p. 284 (sine descr., Loc.: Turkey; host).

Similar to *P. pini* (Hal.) but differs from the latter by the coloration of pterostigma and by the shape of the central areola on propodeum.

Female. — Head transverse, wider than thorax at tegulae, strongly narrowed behind eyes, sparsely haired, slightly granulate, shining. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as two diameters of ocellus. Temple as wide as $\frac{1}{3}$ of transverse eye-diameter. Gena as wide as $\frac{1}{4}$ of longitudinal eye-diameter or as about 1.5 of base of mandible. Mandibles somewhat prominent, bidentate—with small tooth before apex, with long hairs on outer surface. Clypeus prominent, slightly granulate, shiny, with sparse hairs; arcuate and margined frontally; separated by shallow furrow from face that is sparsely haired, feebly granulate, shiny. Relative distance between tentorial pit and eye-margin less than half shorter than relative distance between the pits. Eyes very large, hemispherical, strongly prominent laterally, convergent to the clypeus. Antennae (21)-22-segmented, filiform, as long as about head, thorax and first tergite together, situated at about the level of eyes-centre. Flagellar segment 1 somewhat longer than the following. Apical segment gradually narrowed to the apex, bluntly pointed.

Mesoscutum highly raised above prothorax without covering it when viewed laterally; sparsely haired, shiny, smooth, only slightly rugose to quite smooth in the fore part. Notaulices distinct in the fore part, slightly rugose, comparatively shallow and effaced on the disc of mesoscutum. Praescutellar groove wide, deep, smooth. Scutellum triangular, somewhat prominent,

smooth, shiny sparsely haired. Meso- and metapleurae smooth, shiny. Propodeum (Fig. 7): Rami of the central carina little prominent both in the transverse and longitudinal parts, completing large, wide, pentagonal, central areola that differs by its declivity from the neighbourhood; separating one large upper and one lower areolae on each side. Discs of areolae nearly smooth, shiny, sparsely haired. Wing (Fig. 51) hyaline. Pterostigma triangular, strongly sclerotized, longer than metacarp. Radial abscissa 1 shorter than width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate. Tergite 1 (Fig. 20) about three times as long as wide at spiracles and twice as wide at apex as at spiracles; comparatively slender cephalad of spiracles; impressed from the sides caudad of spiracles and strongly dilating to the apex; with central comparatively prominent keel reaching about the half of the apical part of the tergite; this part being flat especially in the centre, with not very prominent flat protuberances on the sides. Spiracular tubercles prominent, situated at about the half of the tergite. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 43).

Coloration: Head black; face, clypeus, lower part of scape and pedicel rufous yellow to brownish. Prothorax rufous yellow to brownish. Mesoscutum rufous yellow, often with black spots on the lobes or only brownish in the fore part. Scutellum and mesopleurae sometimes partially rufous yellow. The rest of the thorax black. Wing-venation brown; cubital and anal veins being colourless in the fore part. Tegulae brown yellow. Legs: Fore legs brown yellow, coxae and tarsi obscured. Middle coxae, trochanters, femora rufous yellow to brown, tibiae rufous yellow to brown yellow, tarsi obscured. Hind coxae, trochanters, femora brown black; tibiae brown yellow, tarsi obscured. Abdomen: Tergite 1 black brown, following tergites brown yellowish in the basal half and brown in the apical. Apex of abdomen brown. Rarely the abdomen being previously brownish.

Measures: Head, width, 0.84-0.87; interocular l., 0.52-0.59; transfacial l., 0.35-0.45; facial l., 0.49-0.59; clypeoantennal l., 0.17. Antennae: Flagellar segment 1, 0.14; flagellar segment 2, 0.12. Thorax, width at tegulae, 0.66 to 0.70. Wing: Pterostigma, width, 0.21-0.24; length, 0.59-0.66; metacarp, 0.45-0.56; first abscissa of radial v., 0.21; second abscissa 0.17-0.21; inter-radial v., 0.10. Abdomen: Tergite 1, width at spiracles, 0.16-0.17; length, 0.45-0.52. Length of body: About 3.8-4.0 mm.

Male. — Antennae 23-25-segmented. Tergite 1 very flat, nearly parallel-sided, twice as long as wide at spiracles, nearly smooth, shiny. Head black, face rufous yellow; clypeus obscured; mouthparts rufous yellow, apexes of mandibles brownish. Antennae black. Prothorax brown rufous. Mesoscutum black, with yellow rufous base and notaulices. The rest of thorax black. Wings as in the female. Tegulae obscured. Fore legs rufous yellow, tarsi obscured. Middle and hind legs dark brown, femora and tibiae more or less rufous brown. Abdomen black brown. Otherwise like the female except sexual differences.

General distribution: Palearctic region (Europe, Asia Minor).

Material examined: Czechoslovakia. — Bohemia: Lány, distr. Nová Paka, VIII. 1956 (bred from *Cinara laricis* on *Larix europaea*), lgt. Holman, Sweden. — Dlr. Älvdalen, Mossberg, 25. VI. 1954, lgt. K. H. Forsslund, Germany. — Steinberg, 12. VII. 1959 (de *Cinara laricis*), lgt. Schimitschek.

- Host: 1. Literary data: *Cinara pini* (L.) (Marshall, 1896, 1899, England; Fahringer, 1937).
Cinaropsis pilicornis (Htg.) (Schimitschek, 1944, on *Pinus nigra*, Turkey).
?! *Schizolachnus pineti* (F.) (Schimitschek, 1936, Austria).
2. Original data: *Cinaria laricis* (W alk.) (on *Larix europaea*, Czechoslovakia, Germany).

2. *P. albiflagellaris* n. sp.

According to the whitish coloration of the apical part of flagellum similar to *P. infulatus* (H a l.) but differs from the latter by the declivity of mesoscutum and by coloration.

F e m a l e. — Head (Fig. 37) transverse, smooth, shiny, with long sparse hairs, wider than thorax at tegulae, strongly narrowed behind the eyes. Occiput distinctly margined. Relative distance between fore and hind ocelli as 1.5 of ocellus-diameter. Temple somewhat wider than $\frac{1}{3}$ of transverse eye-diameter. Gena very short, about as $\frac{1}{7}$ of transverse eye-diameter or as about width of base of mandible. Mandibles prominent, bidentate, with small tooth before apex, with long hairs on outer surface. Clypeus transverse, slightly prominent, smooth, shiny; slightly arcuate and margined frontally; with deep tentorial pit on each side; separated by shallow groove from face that is smooth, shiny, sparsely haired. Relative distance between tentorial pit and eye-margin about 4 times shorter than relative distance of the pits. Eyes very large, hemispherical, strongly prominent laterally, convergent to the clypeus, with short hairs. Antennae 21-segmented, filiform, nearly as long as about head, thorax and tergite 1 together, situated at about the level of eyes-centre.

Thorax: Mesoscutum raised above prothorax and covering it when viewed laterally; dull shiny and feebly granulate; with sparse long hairs. Notaulices wide, deep and rugose in the fore part; smooth and shallow on the disc but reaching nearly the praescutellar groove that is wide, deep, smooth. Scutellum triangular, slightly prominent, smooth, shiny, sparsely haired, slightly margined laterally. Lateral impressions of metanotum being smooth, shiny. Meso- and metapleurae shiny, smooth. Propodeum (Fig. 11): Rami of the central carina distinctly developed in the fore part and less distinctly in the longitudinal; completing strongly declivous central, wide, pentagonal areola and separating one large upper and one lower areolae on each side. Discs of areolae shiny, with shallow rugosities; central areola nearly smooth; with long sparse hairs. Wings (Fig. 52) hyaline. Pterostigma triangular, strongly sclerotized, somewhat longer than metacarp. First abscissa of radial vein longer than width of pterostigma. Hind wing (Fig. 54) with complete basal cell. Legs normal.

Abdomen: lanceolate, somewhat longer than head and thorax together. Tergite 1 (Fig. 16) about three times as long as wide at spiracles and twice as wide at apex as at spiracles; comparatively slender in the fore part, with lateral impressions beyond spiracular tubercles and then dilating to the apex; coarsely rugose, especially on the sides in the hind part, smoother between spiracular tubercles; with sparse long hairs; comparatively flat. Spiracular

tubercles little prominent, situated about at the half of the tergite. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 40).

Coloration: Head black; face, clypeus, palpi, mandibles (except apexes) rufous brown. Antennae: Scape and pedicel rufous brown, following segments black except 13-20 that are whitish, apical segment obscured. Prothorax dark rufous brown. The rest of thorax black. Wing-venation greyish brown; cubital and anal veins till nervulus whitish. Tegulae brownish. Fore legs rufous brown, tarsi obscured. Middle and hind legs brown black, base of tibiae lightened. Abdomen: Tergite 1 black, tergite 2 brown black, tergite 3 with large rufous brown spot on each side. Remaining tergites brown black.

Measures: Head, width, 0.91; interocular l., 0.52; transfacial l., 0.35; facial l., 0.52; clypeoantennal l., 0.21. Antennae: First flagellar segment 0.14; second segment, 0.12. Thorax, width at tegulae, 0.70. Wing: Pterostigma, width, 0.17; length, 0.63; metacarp 0.56; first abscissa of radial vein, 0.24; second abscissa, 0.21; interradiial v., 0.10. Abdomen: Tergite 1, width 0.16; length, 0.52. Length of body, about 3.5 mm.

Male. — Unknown.

General distribution: Palearctic region (Europe—Czechoslovakia).

Holotype, ♀. — Czechoslovakia; Moravia, Δ Hostýn, VII. 1957 (swept in undergrowth of deciduous forest), lgt. P. Starý. In the author's collection.

Host: Unknown.

3. *P. cupressobii* n. sp.

Similar to *P. piceaecollis* but differs from the latter in coloration, by the number of antennal segments and by the shape of tergite 1. Typical parasite of *Cupressobium juniperi* on Juniperus.

Female. — Head (Fig. 35) transverse, smooth, shiny, wider than thorax at tegulae, with sparse long hairs, strongly narrowed behind eyes. Relative distance between fore and hind ocelli as two diameters of ocellus. Temple as wide as about half of transverse eye-diameter. Gena as wide as $\frac{1}{3}$ of longitudinal eye-diameter or as 1.5 mandible-base. Mandibles prominent, bidentate—with small tooth before apex, with long hairs on outer surface. Clypeus transverse, slightly prominent; arcuate and margined frontally; with sparse hairs; with deep tentorial pit on each side; separated by shallow groove from face that is smooth, shiny, sparsely haired. Relative distance between tentorial pit and eye-margin about $\frac{1}{3}$ shorter than relative distance between the pits. Eyes large, hemispherical, strongly prominent laterally, slightly convergent to the clypeus, sparsely haired. Antennae 18-19-segmented, filiform, reaching about the base of tergite 2, situated somewhat above the level of eyes-centre. Flagellar segment 1 only very little longer than 2. Apical segment comparatively acutely pointed at apex, about $\frac{1}{3}$ longer than the precedent.

Thorax: Mesoscutum smooth, shiny, with sparse long hairs, without covering prothorax when viewed laterally. Notaulices distinct in the fore

part, coarsely rugose-crenulate, effaced on the disc. Praescutellar groove deep, wide, smooth. Scutellum triangular, margined laterally, smooth, with few hairs. Metanotum with smooth lateral impressions. Meso- and metapleurae smooth, shiny. Propodeum (Fig. 14): Rami of the central carina prominent, completing pentagonal, wide, central, declivous areola; separating one large upper and one lower areolae on each side. Discs of areolae smooth, shiny, somewhat rugose in the neighbourhood of spiracles and carinae; comparatively densely haired. Wings (Fig. 59): Pterostigma triangular, strongly sclerotized. Metacarp somewhat shorter than pterostigma. First abscissa of radial vein somewhat longer than width of pterostigma. Hind wings with complete basal cell. Legs normal.

Abdomen lanceolate, as long as about head and thorax together. Tergite 1 (Fig. 21) about three times as long as wide at spiracles; slightly granulate, shiny, slightly convex, somewhat dilated beyond spiracular tubercles to the apex; with long sparse hairs. Spiracular tubercles little to very little visible, situated somewhat before the centre. Remaining tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 34).

Coloration: Head black; face, scape on lower side, mandibles (except apexes) and palpi yellowish. Thorax: Prothorax yellow rufous. Mesoscutum yellow rufous, rarely obscured on the lobes. Mesopleurae yellow rufous, sometimes with smaller dark spots. Scutellum yellow rufous or obscured. Metanotum, metapleurae and propodeum yellow rufous or obscured to black. Wing-venation brownish. Tegulae yellow. Legs: Fore legs yellow, tarsi obscured. Middle and hind legs brown yellow and more or less obscured. Abdomen: Tergite 1 yellow to yellow brown. Remaining tergites brownish, with yellowish spots on the sides.

Measures: Head, width, 0.56-0.70; interocular l., 0.38-0.49; transfacial l., 0.28-0.35; facial l., 0.35-0.42; clypeoantennal l., 0.10-0.17. Antennae: First flagellar segment, 0.09-0.12; second segment, 0.07-0.10. Thorax, width at tegulae, 0.38-0.52. Wing: Pterostigma, width, 0.10-0.17; length, 0.38-0.45; metacarp, 0.24-0.42; first abscissa of radial vein, 0.14-0.17; second abscissa, 0.09-0.14; interradiat. v., 0.07-0.09. Abdomen: Tergite 1, width at spiracles, 0.10-0.14; length, 0.35-0.42. Length of body: About 2.1-2.8 mm.

Male. — Antennae 20-21 segmented. Tergite 1 shorter and stouter than in female, nearly parallel-sided, with more prominent spir. tubercles. Coloration: Head black; face in the centre, lower part of scape, mandibles (except apexes) yellowish. Thorax black; prothorax yellow brown to brown, more or less obscured; mesoscutum black, in the neighbourhood of notaulices rufous brown to black. Legs brown, with more or less obscured tinges. Abdomen brown black; tergite 1 brown yellow to brown. Otherwise like the female except sexual differences.

General distribution: Palearctic region (Europe—Czechoslovakia).

Holotype, ♀, allotype, ♂, 12 paratypes ♀♀♂♂. — Czechoslovakia; Slovakia, Δ Poľana, 12. VII. 1957 (bred from *Cupressobium juniperi* on *Juniperus communis*; pasture meadows at about 1350 m. above sea level, lgt. P. Starý; 7 paratypes ♀♀♂♂, Hermanovce, Preš. hory, 15. V. 1959 (bred from *Cupressobium juniperi* on *Juniperus communis*; submoun-

tain pastures with *Juniperus*; lgt. P. Starý. ♀ Holotype, ♂ Allotype and paratypes in coll. author. Paratypes also in coll. Sedlag (Greifswald), coll. Mackauer (Frankfurt/M.) and in U.S. National Museum collection.

Habitat: Mountain and submountain pastures and meadows with *Juniperus*.

Host: *Cupressobium juniperi* (Deg.) (on *Juniperus communis*, CSR).

4. *P. grossus* (Fahring er), n. comb.

Coelonotus grossus Fahring er, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 244—245 (♀, ♂ descr., Loc.: Austria, Austrian Alps; host). — Fulmek, 1957, Ann. Naturhist. Mus. Wien 61: 223 (sine descr., Loc.: Austria; host).

Readily distinguishable from other species by 28-30-segmented antennae, by characters on propodeum, tergite 1 and on female genitalia.

Female. — Head transverse, slightly granulate, with sparse long hairs, strongly narrowed behind eyes, wider than thorax at tegulae. Occiput distinctly margined. Relative distance between fore and hind ocelli as 2 diameters of ocellus. Temple as wide as about half of transverse eye-diameter. Gena as wide as about $\frac{1}{4}$ of longitudinal eye-diameter or as 1.5 of mandible-base. Mandibles bidentate, little prominent, with long hairs on outer surface. Clypeus transverse, slightly prominent, slightly granulate, shiny, with sparse long hairs; slightly arcuate and margined frontally; with deep tentorial pit on each side; separated by shallow groove from face that is somewhat more coarsely granulate than the other surface of the head and comparatively densely haired. Relative distance between tentorial pit and eye-margin about $\frac{1}{5}$ shorter than relative distance of the pits. Eyes large, nearly hemispherical, strongly prominent laterally. Antennae 28- (after Fahring er 28-30-) segmented, filiform, reaching about the half of abdomen; flagellar segment 1 only slightly longer than the 2.

Thorax: Mesoscutum raised above prothorax and covering it when viewed laterally; granulate, shiny, sparsely haired. Notaulices deep and distinct in the fore part, particularly crenulate, shallow and nearly effaced on the disc. Praescutellar groove comparatively narrow, deep, slightly crenulate to smooth. Scutellum triangular, slightly prominent, granulate, shiny, sparsely haired. Metanotum with comparatively deep and slightly crenulate lateral impressions. Meso- and metapleurae feebly granulate, shiny. Propodeum (Fig. 1): Rami of the central carina very prominent, reaching about the spiracles, little visible in the longitudinal part; completing large, central, pentagonal areola that distinguishes by its declivity from the neighbourhood; separating one large upper and one lower areolae on each side. Surface of areolae being granulate, with sparse long hairs. Wing (Fig. 50): hyaline. Pterostigma triangular, strongly sclerotized. Metacarp longer than pterostigma. First abscissa of radial vein about $\frac{1}{5}$ longer than width of pterostigma. Hind wing with complete basal cell. Legs comparatively long and slender.

Abdomen lanceolate, more than half as long as head and thorax combined. Tergite 1 (Fig. 22) nearly 3.5 times longer than wide at spiracles, coarsely granulate-rugose, comparatively flat; with some hairs in the hind part. Spiracular tubercles situated at about the half of tergite, strongly prominent laterally. Tergite 2 granulate, shiny. Following tergites less granulate to quite smooth, shiny, sparsely haired. Genitalia figured (Fig. 45); ovipositor sheaths with 4 remarkable hairs.

Coloration: Head brown black; face lightened; clypeus, mouthparts (except apexes of mandibles) brown yellow. Antennae black brown; scape and pedicel on lower side brownish. Thorax: Prothorax yellow brown, with obscured tinge in the lower part. Mesoscutum yellow brown, with dark longitudinal spots on the lobes. Scutellum, metanotum, propodeum, upper part of meso- and metapleurae brown black. Legs yellow brown; hind coxae, upper part of femora and tarsi with obscured tinge. Wing-venation brown. Tegulae yellowish. Abdomen: Tergite 1 and 2 brown black, following tergites yellow brown with obscured band in apical part.

Measures. Head, width, 0.98; interocular l., 0.70; transfacial l., 0.56; facial l., 0.59; clypeoantennal l., 0.28. Antennae: Flagellar segment 1, 0.16; fl. segm. 2, 0.14. Thorax, width at tegulae, 0.84. Wing: Pterostigma, width, 0.28; length, 0.70; metacarp, 0.87; radial abscissa 1, 0.35; rad. absc. 2, 0.21; interradiial v., 0.10. Abdomen: Tergite 1, length, 0.70; width at spiracles, 0.21. Length of body: About 5-7 mm.

Male. — After Fahringer (l.c.) differs from female in having 30-segmented antennae.

General distribution: Palearctic region (Europe—Austria, Czechoslovakia).

Material examined: Czechoslovakia. — Bohemia: Čeňkova Pila, Šumava, 11. VIII. 1958 (bred from *Todolachnus abieticola* on *Abies alba*, coniferous forest), lgt. P. Starý.

Habitat: Coniferous forest with firs, esp. on sunny places.

Host: 1. Literary data: *Todolachnus abieticola* (Chol.) (Fahringer, 1937, Austria),

2. Original data: *Todolachnus abieticola* (Chol.) (on *Abies alba*, Czechoslovakia).

Note: The female-specimen from Czechoslovakia corresponds, except some less important characters, to the original Fahringer's description. Type and its deposition are unknown to the author.

5. *P. infulatus* (Haliday), n. comb.

Aphidius infulatus Haliday, 1834, Ent. Mag. 2: 96 (♀♂ descr., Loc.: England). — Marshall, 1896, in André Spec. Hym. Europe d'Algerie 5: 564—565 (♀♂ descr., Loc.: England). — Dalla Torre, 1898, Cat. Hym. 4: 8 (sine descr., Loc.: England). — Marshall, 1899, Trans. ent. Soc. London 1899: 39 (♀♂ descr., Loc.: England). — Szépligeti, 1904, in Wytzman Genera insectorum Fasc. 22: 186 (sine descr., Loc.: England). — Kloet & Hincks, 1945, Check List of Brit. insects (sine descr., Loc.: England). — Telenga, 1948, Trudy Inst. Zool. AN Ukr. SSR 1: 155 (sine descr., Loc.: USSR — Ukraine; habitat: Forest communities).

Coelonotus infulatus (Haliday): Fahringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 241, 243 (descr., Loc.: North and Central Europe; host). — Fulmek, Ann. Naturhist. Mus. Wien 61: 147, 149 (sine descr., Loc.: Germany; host).

According to the whitish apical part of flagellum this species is similar to *P. albiflagellaris* n. sp., but differs from the latter by the declivity of mesoscutum and by coloration.

Female. — Head transverse, smooth, shiny, wider than thorax at tegulae, sparsely haired, strongly narrowed behind eyes. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as two dia-

meters of ocellus. Temple as wide as $\frac{1}{3}$ of transverse eye-diameter. Gena very short, as about $\frac{1}{5}$ of longitudinal eye-diameter or as width of mandible-base. Mandibles prominent, bidentate—with small tooth before apex. Clypeus transverse, slightly granulate, shiny; slightly arcuate and margined frontally; with sparse long hairs; with deep tentorial pit on each side; separated by shallow groove from face that is slightly granulate, shiny, sparsely haired. Relative distance between tentorial pit and eye-margin more than half shorter than relative distance of the pits. Eyes large, hemispherical, strongly prominent laterally, sparsely haired, slightly convergent to the clypeus. Antennae 20-21-segmented, filiform, situated somewhat above the level of eyes-centre, reaching about the end of tergite 1; flagellar segment 1 a little longer than 2; apical segment gradually narrowing to the apex.

Thorax: Mesoscutum raised above prothorax without covering it when viewed laterally; shiny, slightly granulate, sparsely haired. Notaulices distinct in the fore part, crenulate, effaced on the disc. Praescutellar groove deep, wide, smooth. Scutellum triangular, feebly granulate, shiny, sparsely haired, margined laterally. Metanotum with smooth lateral impressions. Meso- and metapleurae smooth and shiny. Propodeum (Fig. 4): Rami of the central carina prominent and distinct especially in the transverse part: completing central, pentagonal, wide areola and separating one large upper and one lower areolae on each side. Discs of areolae coarsely rugose, shiny, only the central areola somewhat smoother; with sparse long hairs. Wing (Fig. 53): Hyaline. Pterostigma triangular, strongly sclerotized, longer than metacarp. Radial abscissa 1 somewhat longer than width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate, somewhat longer than head and thorax together. Tergite 1 (Fig. 28) about three times as long as wide at spiracles, rugose-granulate, with long sparse hairs; slender in the fore part, with lateral impressions beyond spir. tubercles and slightly dilating to the apex. Spiracular tubercles little prominent, situated somewhat before the half of tergite. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 47).

Coloration: Head yellow rufous; upper part (frons partially, occiput and upper part of temples) black; mandibles with dark apices. Antennae: Scape and pedicel yellow rufous; flagellar segments black except the last 4 before the apical that are whitish; apical segment brownish. Thorax black, prothorax yellow rufous. Wing-venation brown; fore half of costal and subcostal veins whitish. Tegulae yellowish. Fore legs yellow rufous, tarsi obscured. Middle and hind legs yellow rufous; coxae, upper part of femora, apices of tibiae and tarsi obscured. Abdomen: Tergite 1 black brown, tergite 2 brownish; remaining tergites yellow rufous with brownish apices; towards the apex of abdomen quite yellow rufous. Ovipositor sheaths dark brown.

Measures. Head, width, 0.70; interocular l., 0.38; transfacial l., 0.28; facial l., 0.38; clypeoantennal l., 0.14. Antennae: Flagellar segment 1, 0.14; fl. segm. 2, 0.12; Thorax, width at tegulae, 0.51. Wing: Pterostigma, width, 0.21; length, 0.63; metacarp, 0.45; radial abscissa 1, 0.23; rad. absc. 2, 0.17; interr radial v., 0.10. Abdomen: Tergite 1, width at spiracles, 0.12; length, 0.40. Length of body: About 2.5 mm.

Male. — After Haliday black; antennae black; wings hyaline; squamae and radicles dull stramineous; nervures and stigma fuscous; fore legs

stramineous, duller on outer side; 4 posterior legs fuscous with almost the whole of the trochanters, both ends of the tibiae, and base of the tarsi stramineous; all the coxae, black; abdomen piceous with a luteous patch in the middle above; 1st segment scarcely dilated at the extremity.

General distribution: Palearctic region (Europe).

Material examined: Czechoslovakia. — Bohemia: Luisino údolí, Orlické hory, 8. VII. 1959 (swept on grassy undergrowth in coniferous forest), lgt. P. Starý. U S S R. — Zvenigorod, distr. of Moskva, VI. 1955 (bred from *Cupressobium juniperi* on *Juniperus communis*), lgt. Holman.

Habitat: Woods.

Host: 1. Literary data: *Aphidae* sp. (Fulmek, 1957, on Conifers, Germany), *Laricaria kochiana* CB (Fahringer, 1937, North and Central Europe),

2. Original data: *Cupressobium juniperi* (Deg.) (on *Juniperus communis*, USSR — eur. part).

6. *P. juniperorum* n. sp.

This species belongs to the group of *Paraphidius*-species that is characterized by the strong, bluntly pointed and slightly upwards curved ovipositor sheaths. Distinguishable from the related species by the shape of tergite 1, by the declivity of mesoscutum, by the coloration and by the number of antennal segments.

Female. — Head transverse, shiny, very feebly granulate to quite smooth, sparsely haired, wider than thorax at tegulae, strongly narrowed behind eyes. Occiput distinctly margined. Temple as wide as $\frac{1}{3}$ of transverse eye-diameter. Gena as wide as $\frac{1}{5}$ of longitudinal eye-diameter or as base of mandible. Mandibles little prominent, bidentate—with small tooth before apex. Clypeus transverse, convex, shiny, smooth, sparsely haired; slightly arched and margined frontally; with deep tentorial pit on each side; separated by shallow groove from face that is smooth to feebly granulate, shiny, sparsely haired. Relative distance between tentorial pit and eye-margin less than $\frac{1}{3}$ shorter than relative distance between the pits. Eyes large, hemispherical, strongly prominent laterally, convergent to the clypeus. Antennae 20-27-segmented, filiform, reaching about the end of tergite 1; flagellar segment 1 only little longer than 2; apical segment pointed at apex, about $\frac{1}{3}$ longer than the precedent.

Thorax. Mesoscutum raised above prothorax without covering it when viewed laterally; smooth, shiny, sparsely haired. Notaulices distinct in the fore part, slightly rugose, effaced on the disc. Praescutellar groove deep, wide, smooth. Scutellum triangular, feebly margined laterally, smooth, shiny, sparsely haired. Metanotum with smooth lateral impressions. Meso- and metapleurae smooth, shiny. Propodeum (Fig. 9): Rami of the central carina not very prominent but distinct; completing central, pentagonal, large areola that differs by its declivity from the neighbourhood; separating on large upper and one lower areolae on each side. Discs of areolae mostly smooth, in the neighbourhood of carinae and spiracles slightly rugose; shiny, sparsely haired. Wing (Fig. 55) hyaline. Pterostigma triangular, strongly sclerotized, longer than metacarp. Radial abscissa 1 as long as width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate, somewhat longer than head and thorax together. Tergite 1 (Fig. 19) about three times as long as wide at spiracles, shiny, rugose-punctate, slightly convex, sparsely haired; with lateral impressions beyond spirac. tubercles and slightly dilating to the apex. Spiracular tubercles prominent, situated at half of the tergite. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 49).

Coloration. Head black; mouthparts, clypeus, face, lower part of scape brownish to brown yellowish. Thorax black; prothorax brownish to brown yellow. Wing-venation brownish; cubital and anal veins colourless in the fore part. Fore legs brown yellow, tarsi obscured. Middle and hind legs brown; lower part of femora and base of tibiae brown yellow. Abdomen: Tergites 1 and 2 brownish, following brown black.

Measures. Head, width, 0.70; interocular l., 0.42-0.45; transfacial l., 0.28-0.31; facial l., 0.38-0.42; clypeoantennal l., 0.17. Antennae: Flagellar segment 1, 0.10-0.12; fl. segm. 2, 0.09-0.10. Thorax, width at tegulae, 0.49 to 0.56. Wing: Pterostigma, width, 0.17-0.19; length, 0.45-0.52; metacarp., 0.35-0.38; radial abscissa 1, 0.17-0.19; absc. 2, 0.14-0.17; interradiial v., 0.07. Abdomen: Tergite 1, width at spiracles, 0.12; length, 0.35. Length of body: About 2.9 mm.

Male. — Unknown.

General distribution: Palearctic region (Europe—Czechoslovakia).

Holotype ♀, paratype ♀, Czechoslovakia; Slovakia: Δ Poľana, VII. 1957 (bred from *Cupressobium juniperi* on *Juniperus communis*; mountain meadows at about 1350 m. above sea level, lgt. P. Starý. Holotype and paratype in author's collection.

Habitat: Mountain meadows and pastures with *Juniperus*.

Host: *Cupressobium juniperi* (Deg.) (on *Juniperus communis*, Czechoslovakia).

7. *P. laricis* (Haliday), n. comb.

Aphidius laricis Haliday, 1834, Ent. Mag. 2: 97 (♀♂ descr., Loc.: England, Sweden). — Marshall, 1896, in André Spec. Hym. Europe d'Algerie 5: 566—567 (♀♂ descr., Loc.: England; host). — Dalla Torre, 1898, Cat. Hym. 4: 9 (sine descr., Loc.: England, Sweden). — Marshall, 1899, Trans. ent. Soc. London 1899: 41 (♀♂ descr., Loc. England; host). — Schimitschek, 1936, Z. ang. Ent. 22: 564 (sine descr., Loc.: Austria; host). — Watanabe, 1940, Ins. Mats. Sapporo 15: 53—56 (redescrip., Loc.: Austria; host).

Aphidius (*Coelonotus*) *laricis* Haliday: Thomson C. G., 1895, Opusc. entomologica 20: 2334—2335 (♀ descr., Loc.: Sweden).

Coelonotus laricis (Haliday): Szépligeti, 1904, in Wytzman Genera insectorum Fasc. 22: 185 (sine descr., Loc.: Sweden, England). — Fahringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 243, 244 (♀♂ descr., Loc.: Europe, Siberia; host). — Fulmek, 1957, Ann. Naturhist. Mus. Wien 61: 159, 173, 190 (sine descr., Loc.: Europe, Japan; host).

Protaphidius laricis (Haliday): Kloet & Hincks, 1945, Check List of Brit. insects (sine descr., Loc.: England).

This species differs from its congeners by the remarkable shape of ovipositor sheaths.

Female. — Head transverse, smooth, shiny, sparsely haired, strongly narrowed behind eyes, wider than thorax at tegulae. Occiput distinctly mar-

gined. Relative distance between fore and hind ocelli as long as 1.5 of ocellus-diameter. Temple somewhat wider than $\frac{1}{3}$ of transverse eye-diameter. Gena about as wide as $\frac{1}{3}$ of longitudinal eye-diameter or as 1.5 base of mandible. Mandibles prominent, bidentate—with small tooth before apex. Clypeus transverse, slightly convex, smooth, shiny, with sparse hairs; with deep tentorial pit on each side; separated by shallow groove from face that is smooth, shiny, sparsely haired. Relative distance between tentorial pit and eye-margin less than $\frac{1}{4}$ shorter than relative distance between the pits. Eyes large, hemispherical, strongly prominent laterally, slightly convergent to the clypeus. Antennae 20-21-segmented, filiform; flagellar segment 1 little longer than 2; apical segment gradually narrowing to the apex.

Thorax: Mesoscutum strongly raised above prothorax and covering it when viewed laterally; very feebly granulate to quite smooth, sparsely haired. Notaulices wide, deep and rugose in the fore part, effaced on the disc. Praescutellar groove deep, wide, smooth. Scutellum triangular, slightly prominent, sparsely haired, very slightly marginate laterally. Metanotum with partially feebly rugose and shiny lateral impressions. Meso- and metapleurae smooth, shiny. Propodeum (Fig. 8): Rami of the central carina strongly prominent both in the transverse and longitudinal parts; completing large central, wide, strongly concave and distinguishing from its neighbourhood areola; separating one large upper and one lower areolae on each side. Discs of areolae shiny; lower areolae on the sides and central areola slightly rugose. Wing (Fig. 61): Pterostigma triangular, strongly sclerotized, as long as metacarp. Radial abscissa somewhat shorter than width of pterostigma. Hind wings with complete basal cell. Legs normal.

Abdomen lanceolate, about one half longer than head and thorax together. Tergite 1 (Fig. 26) more than three times as long as wide at spiracles; slender in the fore part, dilating beyond spir. tubercles to the apex; convex, rugose, not very shiny, sparsely haired. Spiracular tubercles little prominent, situated at half of the tergite. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 46). Ovipositor sheaths slender, slightly curved upwards, strongly narrowed at base and especially at the apex.

Coloration. Head yellow rufous; occiput and upper part of temples brownish. Antennae black; scape and pedicel in lower part yellow rufous. Thorax: Prothorax yellow rufous. Mesoscutum yellow rufous, with longitudinal brown black spots on the lobes. Scutellum and mesopleurae partially rufous yellow. The rest of thorax black. Wing venation brown; cubital and anal veins colourless in the fore part. Tegulae yellow rufous. Fore legs yellow rufous, tarsi obscured. Middle and hind legs rufous brown; coxae, trochanters, upper part of femora, tibiae and tarsi more or less obscured. Abdomen: Tergite 1 black. Tergites 2, 3 and 4 with yellowish spots on the sides, brownish in the centre and at apical half. Remaining tergites brown black.

Measures. Head, width, 0.84; interocular l., 0.56; transfacial l., 0.42; facial l., 0.52; clypeoantennal l., 0.17. Antennae: Flagellar segment 1, 0.14; flag. segm. 2, 0.12; Thorax, width at tegulae, 0.63. Wing: Pterostigma, width, 0.21; length, 0.49; metacarp, 0.49; radial abscissa 1, 0.19; rad. absc. 2, 0.21; interradianal v., 0.14. Abdomen: Tergite 1, width at spiracles, 0.14; length, 0.49. Length of body: About 3.8 mm.

Male. — After Haliday's original description "Wings white, not infumated; legs darker than those of the female".

General distribution: Palearctic region (Europe).

- Host: 1. Literary data: *Aphidae* sp. (Marshall, 1896, 1899, on *Larix*, England),
Cinara sp. (Schimitschek, 1936, on *Pinus nigra*, Austria),
Cinaria laricis (Walk.) (Watanabe, 1940, Japan),
Laricaria kochiana C.B. (Fahringer, 1937, Europe).
2. Original data: *Cinaria nuda* (Mordw.) (on *Pinus silvestris*, Germany),
Lachnidae sp. (on *Pinus silvestris*, Czechoslovakia).

8. *P. maculolachni* n. sp.

This species belongs to the group of *Paraphidius*-species that is characterized by wide, stout, slightly upwards curved ovipositor sheaths. Differs from its relatives in having very feebly developed to hardly visible carinae on propodeum and in having gena as long as half of longitudinal eye-diameter.

Female. — Head (Fig. 39) transverse, shiny, smooth, sparsely haired, strongly narrowed behind the eyes, wider than thorax at tegulae. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as 3 diameters of ocellus. Temple as wide as about transverse eye-diameter. Gena as wide as half of longitudinal eye-diameter or as 1.5 of mandible-base. Mandibles prominent, bidentate—with small tooth before apex. Clypeus transverse, smooth, sparsely haired; feebly arched and margined frontally; with deep tentorial pit on each side; separated by shallow groove from face. Relative distance between tentorial pit and eye-margin about $\frac{1}{3}$ shorter than relative distance between the pits. Eyes comparatively small, nearly hemispherical, strongly prominent laterally, slightly convergent to the clypeus, sparsely haired. Antennae 21-22-segmented, filiform, reaching about the half of abdomen; flagellar segment 1 only slightly longer than 2; apical segment obtusely pointed at apex, about $\frac{1}{3}$ longer than the precedent.

Thorax: Mesoscutum falling comparatively vertically to the prothorax, without covering it when viewed laterally, sparsely haired. Notaulices distinct in the fore part, crenulate to rugose, effaced on the disc. Praescutellar groove wide, deep, smooth. Scutellum triangular, smooth, sparsely haired, margined laterally. Metanotum with smooth lateral impressions. Meso- and metapleurae smooth, shiny. Propodeum (Fig. 6): Rami of the central carina little visible, sometimes hardly distinguishable from slightly rugose neighbourhood; completing large, central, pentagonal areola that is very little concave only and nearly does not differ from the neighbourhood (the shape of this areola is a little variable; it is sometimes of less pentagonal shape than it is given in the figure); separating not entirely one upper and one lower areolae on each side. The central areola inside and on the sides with irregular rugosities or carinae that are sometimes only somewhat more feeble than the central carina and its rami. Discs of areolae smooth to slightly irregularly rugose—especially in the neighbourhood of spiracles and carinae; with sparse long hairs. Wing (Fig. 56) hyaline. Pterostigma triangular, strongly sclerotized. Metacarp as long as about pterostigma. Radial abscissa 1 somewhat longer than width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate, as long as about head and thorax combined. Tergite 1 (Fig. 17) about two and half times as long as wide at spiracles, granulate, shiny, with sparse long hairs; somewhat dilating to the apex beyond spir. tubercles that are situated at half of the tergite, slightly visible. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 38). Ovipositor sheaths comparatively long and wide, slightly curved upwards.

Coloration: Head black; scape and pedicel slightly yellowish on lower side. Mandibles yellow (except apexes), palpi brownish. Thorax black; prothorax yellow, sometimes with more obscured tinge. Mesocutum yellowish in the neighbourhood of notaulices. Wing-venation brownish. Tegulae yellowish. Legs brownish with yellowish tinge. Abdomen: Tergite 1 yellowish. Remaining tergites brown, with yellowish tinge on the sides (in the fore part of abdomen), quite brown afterwards.

Measures. Head, width, 0.59-0.66; interocular l., 0.42-0.45; transfacial l., 0.35-0.38; facial l., 0.42-0.45; clypeoantennal l., 0.17. Antennae: Flagellar segment 1, 0.10-0.12; flag. segm. 2, 0.10. Thorax, width at tegulae, 0.49-0.52. Wing: Pterostigma, width, 0.15-0.17; length, 0.42-0.49; metacarp, 0.45-0.52; radial abscissa 1, 0.14-0.21; rad. absc. 2, 0.17-0.21; interr radial v., 0.09-0.10. Abdomen: Tergite 1, width at spiracles, 0.12-0.14; length, 0.28-0.35. Length of body: 2.4-2.8 mm.)

Male. — Coloration darker than in the female; yellowish colour less distributed. Otherwise like the female, except sex. differences. (Antennae broken in the allotype.)

General distribution: Palearctic region (Europe—Czechoslovakia).

Holotype ♀, allotype ♂, 4 paratypes ♀♀, Czechoslovakia. — Bohemia: Praha, 1953 (bred from *Maculolachnus submacula* on *Rosa* sp., lgt. Hostounský. ♀ Holotype, ♂ Allotype and paratypes in author's collection.

Host: *Maculolachnus submacula* (Walk.) (on *Rosa* sp., Czechoslovakia).

9. *P. piceaeollis* n. sp.

This species is similar to *P. cupressobii* n. sp. from which differs by the number of antennal segments and by the shape of tergite 1.

Female. — Head transverse, strongly narrowed behind eyes, wider than thorax at tegulae, shiny, with long sparse hairs. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as two diameters of ocellus. Temple as wide as $\frac{1}{3}$ of transverse eye-diameter. Gena as wide as $\frac{1}{3}$ of longitudinal eye-diameter or as 1.5 of mandible-base. Mandibles prominent, bidentate—with small tooth before apex. Clypeus transverse, slightly arched and margined frontally; smooth, shiny, sparsely haired; with deep tentorial pit on each side; separated by shallow groove from face that is smooth, shiny, sparsely haired. Eyes large, nearly hemispherical, strongly prominent laterally, sparsely haired. Antennae 19-20-segmented, filiform, somewhat longer than head, thorax and tergite 1 combined, situated somewhat above the level of eyes-centre; flagellar segment 1 only slightly longer than 2; apical segment about $\frac{1}{3}$ longer than the precedent, gradually narrowing to the apex.

Thorax: Mesoscutum without covering prothorax when viewed laterally; smooth, shiny, sparsely haired. Notaulices distinct in the fore part, rugose to crenulate, effaced on the disc. Praescutellar groove wide, deep, smooth. Scutellum triangular, smooth, shiny, margined laterally. Metanotum with smooth lateral impressions. Meso- and metapleurae smooth, shiny. Propodeum (Fig. 13): Rami of the central carina prominent and completing wide, central, pentagonal areola that differs very strongly by its declivity from the neighbourhood; separating not entirely one upper and one lower areolae on each side. Discs of areolae smooth, somewhat rugose in the neighbourhood of carinae and spiracles, with long sparse hairs. Wing (Fig. 62) hyaline. Pterostigma triangular, strongly sclerotized. Metacarp somewhat shorter than pterostigma. Radial abscissa 1 longer than width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate, somewhat longer than head and thorax together. Tergite 1 (Fig. 27) about two and half times as long as wide at spiracles, granulate-rugose, smooth, somewhat dilating beyond spir. tubercles to the apex but nearly parallel-sided; with long sparse hairs. Spiracular tubercles slightly prominent, situated about at the centre of the segment. Remaining tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 36).

Coloration: Head black; face more or less, lower part of scape, mandibles (except apexes), palpi and clypeus yellowish. Thorax: Mesoscutum black, on the base and in the neighbourhood of notaulices and along the effaced notaulices on the disc yellowish to light brownish. Prothorax yellow. Remaining parts of thorax black, sometimes mesopleurae beneath tegulae slightly yellowish. Wing-venation brownish. Tegulae yellowish. Fore legs yellow, apexes of tarsi (and sometimes base of femora) brownish. Middle and hind legs brown-yellow; coxae, femora, apexes of tibiae and tarsi more or less obscured. Abdomen: Tergite 1 more or less brown-yellow; remaining tergites in the centre and on the apex more or less brown, otherwise brown yellow to yellow.

Measures. Head, width, 0.63-0.70; interocular l., 0.42-0.45; transfacial l., 0.31-0.35; facial l., 0.42-0.45; clypeoantennal l., 0.14-0.17. Antennae: Flagellar segment 1, 0.12-0.14; flag. segm. 2, 0.10-0.12. Thorax, width at tegulae, 0.52-0.59. Wing: Pterostigma, width, 0.14-0.17; length, 0.45-0.52; metacarp, 0.38-0.45; radial abscissa 1, 0.17-0.24; rad. absc. 2, 0.14-0.17; inter-radial v., 0.07-0.09. Abdomen: Tergite 1, width at spiracles, 0.14; length, 0.35. Length of body: 2.8-3.0 mm

Male. — Antennae 21-segmented. Tergite 1 somewhat more parallel-sided than in the female. Coloration: Head black; lower part of clypeus, lower part of scape, mandibles (except apexes) and palpi yellowish. Thorax entirely black, prothorax sometimes brownish in the lower part. Legs brown, with lighter tinge. Abdomen: Tergite 1 brown, remaining tergites dark brown. Otherwise like the female except sexual differences.

General distribution: Palearctic region (Europe—Czechoslovakia).

Holotype ♀, allotype ♂, 8 paratypes ♀♀♂♂. Czechoslovakia; Bohemia: Horní Lipka u Králík, 8. VIII. 1958 (bred from *Cinaria* sp. on *Picea excelsa*; wood-edge, lgt. P. Starý. Paratype ♀, Slovakia:

△ Pořana, 12. VIII. 1957 (bred from *Cinaria* sp. on *Picea excelsa*; edge of wood and mountains meadow at about 1350 alt. above sea level, lgt. P. Stary. ♀ Holotype, ♂ Allotype and paratypes in coll. author. Paratypes also in coll. Sedlag (Greifswald), in coll. Mackauer (Frankfurt/M.) and in U.S. National Museum collection.

Habitat: Occurs in the mountains; in the wood-edges, glades and in the sunny woods.

Host: *Cinaria* sp. (on *Picea excelsa*, Czechoslovakia).

10. *P. pictus* (Haliday), n. comb.

Aphidius pictus Haliday, 1834, Ent. Mag. 2: 85 (♀ descr., Loc.: England, Sweden). — Marshall, 1896, in André Spec. Hym. Europe d'Algérie 5: 563 (♀ descr., Loc.: England; host). — Dalla Torre, 1898, Cat. Hym. 4: 10 (sine descr., Loc.: England, Sweden). — Marshall, 1899, Trans. ent. Soc. London 1899: 38—39 (♀ descr., Loc.: England; host). — ?! Ferrière, 1928, Mitt. Schweiz. ent. Ges. 14: 14 (sine descr., Loc.: Switzerland; host).

Aphidius (Coelonotus) pictus (Haliday): Thomson C. G., 1895, Opusc. entomologica 20: 2334 (♀ descr., Loc.: Germany). — Schimitschek, 1936, Z. ang. Ent. 22: 564 (sine descr., Loc.: Austria; host). — Schimitschek, 1936, Zbl. Forstwes. 62: 115 (sine descr., Loc.: Austria; host).

Coelonotus pictus (Haliday): Szépligeti, 1904, in Wytsman Genera insectorum Fasc. 22: 185 (sine descr., Loc.: Sweden, England). — Fahringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 242 (♀ descr., Loc.: North and Central Europe; host). — Fulmek, 1957, Ann. Naturhist. Mus. Wien 61 (sine descr., Loc., host).

Protaphidius pictus (Haliday): Kloet & Hincks, 1945, Check List of Brit. insects sine descr., Loc.: England).

This species is remarkable by the shape of tergite 1 and by the shape of ovipositor sheaths.

Female. — Head transverse, smooth, shiny, wider than thorax at tegulae, with long sparse hairs, strongly narrowed behind eyes. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as 1.5 of ocellus-diameter. Temple narrow, as wide as $\frac{1}{3}$ of transverse eye-diameter, Gena narrow, as wide as $\frac{1}{4}$ of longitudinal eye-diameter or as two mandible-bases. Mandibles bidentate—with small tooth before apex; little prominent. Clypeus transverse, slightly convex, smooth, shiny, sparsely haired; with deep tentorial pit on each side; separated by shallow groove from face that is smooth and comparatively densely haired; arched and slightly margined frontally. Relative distance between tentorial pit and eye-margin somewhat more than $\frac{1}{4}$ shorter than relative distance of the pits. Eyes large, nearly hemispherical, strongly prominent laterally. Antennae ?-segmented, filiform. Flagellar segment 1 only slightly longer than 2.

Thorax: Mesoscutum (Fig. 31) strongly raised above prothorax and covering it when viewed laterally; feebly granulate, shiny, with long sparse hairs. Notaulices deep, wide and crenulate in the fore part, narrow and shallow afterwards, feebly visible, reaching nearly praescutellar groove that is deep, wide, smooth. Scutellum triangular, little prominent, almost smooth, shiny, sparsely haired, slightly margined laterally. Metanotum with smooth lateral impressions. Meso- and metapleurae very feebly punctate, nearly smooth, sparsely haired. Propodeum (Fig. 5): Rami of the central carina completing one large, pentagonal, wide areola; separating one large upper and one lower areolae on each side. Discs of areolae almost smooth; lower

areolae especially in the neighbourhood of spiracles rugose, shiny; sparsely haired. Wing (Fig. 57): Large, hyaline. Pterostigma triangular. Metacarp somewhat shorter than width of pterostigma. Radial abscissa 1 about as long as width of pterostigma. Hind wing with complete basal cell. Legs comparatively strong.

Abdomen lanceolate. Tergite 1 (Fig. 24) very slender, nearly petiolate and arched cephalad of spiracles; about three times as long as wide at spiracles; dilating just beyond spir. tubercles towards the apex; slightly granulate-rugose, shiny, comparatively convex, with some long hairs in the hind part. Spiracular tubercles situated in the centre, very little prominent. Following tergites smooth, shiny. Genitalia figured (Fig. 42). Ovipositor sheaths stout, long, strongly curved upwards.

Coloration. Head yellow; ocellar triangle, upper part of temples obscured. Scape on lower part yellow, the rest of antennal segments brown black. Prothorax yellow. Mesoscutum yellow, with 3 longitudinal spots on the lobes. Mesopleurae yellowish in the fore part. The rest of thorax black. Wing-venation brown. Tegulae yellow. Legs brown yellow; coxae, upper part of femora, apex of tibiae and tarsi obscured. Abdomen: Tergite 1 black; following tergites brownish.

Measures: Head, width, 0.91; interocular l., 0.56; transfacial l., 0.45; facial l., 0.49; clypeoantennal l., 0.21. Antennae: Flagellar segment 1, 0.14; flag. segm. 2, 0.12. Thorax, width at tegulae, 0.77. Wings: Pterostigma, width, 0.24; length, 0.70; metacarp, 0.56; radial abscissa 1, 0.24; rad. absc. 2, 0.21; interradiial v., 0.14. Abdomen: Tergite 1, width at spiracles, 0.21; length, 0.70. Length of body: About 3.7 mm.

Male. — Unknown.

General distribution: Palearctic region (Europe).

Material examined: Germany, 22. VI. 1956 (bred from *Cinaria nuda* on *Pinus silvestris*), lgt. Sedlag. Sweden. — Mossiberg, 23. VIII. 1953, lgt. Forsslund

Host: 1. Literary data: *Aphidae* sp. (Marshall, 1896, 1899, on *Pinus silvestris*, England),

Cinara pini (L.) (Fahringer, 1937, Central Europe),

Cinaria cembrae (Chol.) (Fahringer, 1937, C. Europe),

Cinaropsis cistata (Bckt.) (Fahringer, 1937, Central Europe),

Cinaropsis pilicornis (Htg.) (Fahringer, 1937, Central Europe),

Cinaropsis pruinosa (Htg.) (Fahringer, 1937, Central Europe),

?! *Macrosiphon rosae* (L.) (Ferrière, 1928, Switzerland),

?! *Nasonovia ribisnigri* (Mosl.) (Ferrière, 1928, Switzerland).

Todolachnus abieticola (Chol.) (Schimitschek, 1936, on *Abies alba*, Austria)

2. Original data: *Cinaria nuda* (Mordw.) (on *Pinus silvestris*, Germany).

11. *P. pini* (Haliday), n. comb.

Aphidius pini Haliday, 1834, Ent. Mag. 2: 96 (♀♂ descr., Loc.: Sweden, England). — Marshall, 1896, in André Spec. Hym. Europe d'Algérie 5: 566—567 (♀♂ descr., fig., Loc.: England; host). — Dalla Torre, 1898, Cat. Hym. 4: 10 (sine descr., Loc.: Sweden, England). — Marshall, 1899, Trans. ent. Soc. London 1899: 41 (♀♂ descr., fig., Loc.: England; host). — Schimitschek, 1935, Zbl. Forstwes.

61: 215 (sine descr., Loc.: Czechoslovakia, Austria; host). — Seitner, 1936, Zbl. Forstwes. 62: 46 (sine descr., Loc.: Austria; bion.; host). — Schimitschek, 1936, Z. ang. Ent. 22: 564 (sine descr., Loc.: Czechoslovakia, Austria; host). — Watanabe, 1940, Ins. Mats. Sapporo 15: 53—56 (redescr., Loc.: Japan; host).

Aphidius (Coelonotus) pini (Haliday): Thomson C. G., 1895, Opusc. entomologica 20: 2334 (♀♂ descr., Loc.: Sweden).

Coelonotus pini (Haliday): Szépligeti, 1904, in Wytsman Genera insectorum Fasc. 22: 185 (sine descr., Loc.: Sweden, England). — Fahringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 243—244 (♀♂ descr., Loc.: Europe; host). — Watanabe, 1941, Ins. Mats. Sapporo 15: 109 (Loc.: Japan; host). — Fulmek, 1957, Ann. Naturhist. Mus. Wien 61 (sine descr., Loc.; host).

Protaphidius pini (Haliday): Kloet & Hincks, 1945, Check list of Brit. insects (sine descr., Loc.: England).

This species is similar to *P. abietis* (Marshall) but differs from the latter by the coloration of pterostigma and by the shape of propodeum.

Female. — Head transverse, shiny, smooth, with sparse long hairs, wider than thorax at tegulae, strongly narrowed behind eyes. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as 1.5 of ocellus-diameter. Temple as wide as $\frac{1}{3}$ of transverse eye-diameter. Gena as wide as $\frac{1}{4}$ of longitudinal eye-diameter or as 1.5 of mandible-base. Mandibles bidentate—with small tooth before apex. Clypeus transverse, feebly shiny granulate; slightly arched and margined frontally; with sparse long hairs; separated by shallow groove from face that is feebly granulate, with long sparse hairs. Relative distance between tentorial pit and eye-margin more than $\frac{1}{3}$ shorter than relative distance of the pits. Eyes large, hemispherical, sparsely haired, strongly prominent laterally. Antennae 22-segmented, filiform, about as long as head, thorax and tergite 1 together. Flagellar segment 1 only a little longer than 2; apical segment gradually narrowing to the apex, about $\frac{2}{3}$ longer than the precedent.

Thorax: Mesoscutum highly raised above prothorax and covering it when viewed laterally; slightly feebly granulate, sparsely haired. Notaulices distinct in the fore part, comparatively wide, somewhat rugose, effaced on the disc. Praescutellar groove deep, wide, smooth. Scutellum triangular, feebly margined laterally, smooth, shiny, sparsely haired. Metanotum with smooth and shiny lateral impressions. Meso- and metapleurae shiny, feebly granulate. Propodeum (Fig. 3): Rami of the central carina strongly prominent both in transverse and longitudinal parts; completing large, central, pentagonal areola that differs by its declivity and concavity from its neighbourhood; separating not entirely one upper and one lower areolae on each side. Discs of areolae smooth, slightly granulate-rugose to granulate. Lateral areolae with sparse hairs. Wing (Fig. 64) hyaline. Pterostigma triangular, strongly sclerotized, longer than metacarp. Radial abscissa 1 somewhat shorter or as long as width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate, somewhat longer than head and thorax combined. Tergite 1 (Fig. 18) about three times as long as wide at spiracles and twice as wide at apex as at spiracles; slender cephalad of spiracles; with shallow lateral impressions beyond spir. tubercles and strongly dilating to the apex; this part of the tergite is very flat, slightly impressed in the centre; smooth, slightly rugose-granulate, with sparse long hairs. Spiracular tubercles some-

what prominent, situated at about the half of tergite. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 33).

Coloration. Head: Frons, vertex, occiput more or less brown black. Temples, genae, face more or less yellow rufous. Clypeus and mouthparts yellow. Antennae black; scape and pedicel, especially in the lower part, rufous yellow. Thorax: Prothorax rufous yellow. Mesoscutum rufous yellow, more or less obscured on the lobes and in the neighbourhood of praescutellar groove. Scutellum rufous yellow to obscured. Mesopleurae partially rufous yellow to obscured. Remaining parts of thorax black. Wing-venation brown. Pterostigma yellowish at the base; cubital and anal veins colourless in the fore part. Fore legs rufous yellow, tarsi obscured. Middle and hind legs brown; coxae, femora partially, base of tibiae and tarsi more or less yellow brown. Abdomen: Tergite 1 black brown. Tergite 2 yellow rufous at base, the rest brown. Following tergites with yellow rufous basal half and nearly brown apical one. Ovipositor sheaths brown.

Measures. Head, width, 0.84-0.94; interocular l., 0.52-0.59; transfacial l., 0.38-0.42; facial l., 0.49-0.56; clypeoantennal l., 0.17-0.21. Antennae: Flagellar segment 1, 0.14-0.16; flag. segm. 2, 0.12. Thorax, width at tegulae, 0.66 to 0.70. Wing: Pterostigma, width, 0.21-0.24; length, 0.56-0.70; metacarp, 0.45-0.56; radial abscissa 1, 0.21-0.24; rad. absc. 2, 0.14-0.17; interr radial v., 0.10-0.14. Abdomen: Tergite 1, width at spiracles, 0.14-0.17; length, 0.42 to 0.52. Length of body: About 3.5-4.2 mm.

Male. — Antennae 24-segmented, reaching about half of the abdomen. Tergite 1 more parallel-sided than in female, about twice as long as wide at spiracles. Coloration: Head black; clypeus, mandibles (except apexes) and palpi yellow brown to brownish. Thorax black. Wing-venation as in female, only the whitish colour of pterostigma is less distributed. Abdomen black. Fore legs brown, tibiae and tarsi obscured. Middle and hind legs black brown. coxae, part of femora and base of tibiae lightened. Otherwise like female except sexual differences.

General distribution: Palearctic region (Europe, Japan).

Material examined: Czechoslovakia. — Bohemia: Maxičky, distr. Děčín, 8. VII. 1956, lgt. Bouček; Hor. Vitavice, Šumava, 24. VI. 1959 (bred from *Lachnidae* on *Pinus silvestris*; meadow near coniferous wood), lgt. P. Starý; Katovice, distr. Strakonice, 26. V. 1959 (bred from *Lachnidae* on *Pinus silvestris*; shrubs near coniferous wood in a very arid habitat), lgt. P. Starý; Blažejovice, Šumava, 22. VII. 1959 (bred from *Lachnidae* on *Pinus silvestris*; wet meadow with few pine-trees), lgt. P. Starý. Germany. — Peitz, Bez. Cottbus, 22. VI. 1956 (bred from *Lachnidae* sp. on *Pinus silvestris*), lgt. Sedlag; Greifswald, 9. VII. 1958 (bred from *Cinaria nuda* on *Pinus silvestris*), lgt. Sedlag; Lubmin, Greifswald, 19. VII. 1957 (bred from *Cinaria nuda* on *Pinus silvestris*), lgt. Sedlag.

Habitat: Coniferous woods.

Host: 1. Literary data: *Laricaria kochiana* C.B. (Schimitschek, 1935, 1936, on *Larix*, Czechoslovakia),

Cinara sp. (Marshall, 1896, 1899, on *Pinus silvestris*, England),

Cinara pini (L.) (Marshall, 1896, 1899, England; Schimitschek, 1936, Austria; Fahringer, 1937, Europe; Watanabe, 1941, on *Pinus densiflora*, Japan),

Cinaria cembrae (Chol.) (Seitner, 1936, on *Pinus cembra*, Austria).

Cinaria laricis (Walk.) (Watanabe, 1940, Japan),
Cinaria nuda (Mordw.) (Fahringer, 1937, Europe),
Cinaria taeniata (Koch) (Fulmek, 1957, Austria),
Cinaropsis cistata (Bekt.) (Fahringer, 1937, Europe),
Cinaropsis pruinosa (Htg.) (Fulmek, 1957, Austria),
Cupressobium juniperi (Deg.) (Fulmek, 1957, Austria).

2. Original data: *Lachnidae* sp. (on *Pinus silvestris*, Germany, Czechoslovakia),
Cinaria nuda (Mordw.) (on *Pinus silvestris*, Germany).

12. *P. pinicollis* n. sp.

This species belongs to the group of *Paraphidius*-species that is characterized by wide, stout, slightly curved upwards ovipositor sheaths and by the shape of tergite 1 that is only slightly dilating to the apex. From its relatives differs by the declivity of mesoscutum.

Female. -- Head transverse, shiny, feebly granulate, sparsely haired, wider than thorax at tegulae, strongly narrowed behind eyes. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as 1.5 of ocellus-diameter. Temple somewhat wider than $\frac{1}{3}$ of transverse eye-diameter. Gena as wide as $\frac{1}{3}$ of longitudinal eye-diameter or as 1.5 base of mandible. Mandibles prominent, bidentate—with small tooth before apex. Clypeus transverse, only slightly wider than high; slightly arched and margined frontally; slightly granulate; sparsely haired; with deep tentorial pit on each side; separated by shallow groove from face that is feebly granulate, sparsely haired. Relative distance between tentorial pit and eye-margin about $\frac{1}{4}$ shorter than relative distance between the pits. Eyes of middle size, nearly hemispherical, strongly prominent laterally. Antennae 20-segmented, filiform, reaching about the end of tergite 1; flagellar segment 1 only somewhat longer than 2; apical segment gradually narrowing to the apex.

Thorax: Mesoscutum highly elevated above prothorax, covering it when viewed laterally; shiny, feebly granulate, with sparse long hairs. Notaulices distinct in the fore part, wide, deep, rugose, effaced on the disc. Praescutellar groove deep, wide, smooth. Scutellum triangular, slightly granulate, shiny, sparsely haired, slightly margined laterally. Metanotum with shiny and feebly granulate lateral impressions. Mesopleurae smooth, shiny. Metapleurae shiny, partially granulate-rugose. Propodeum (Fig. 10): Rami of the central carina prominent both in transverse and longitudinal parts; completing distinctly not very wide, central, pentagonal areola and separating not entirely one large upper and one lower aerolae on each side. Central areola only slightly declivous. Discs of areolae shiny, more or less feebly granulate-rugose; with long sparse hairs. Wing (Fig. 58) hyaline. Pterostigma triangular, strongly sclerotized, somewhat longer than metacarp. Radial abscissa 1 longer than width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate, somewhat longer than head and thorax together. Tergite 1 (Fig. 30) about three times as long as wide at spiracles, granulate-rugose, comparatively parallel-sided and only little dilating to the apex; comparatively convex, sparsely haired. Spiracular tubercles situated about in the centre of the segment, very little prominent. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 48).

Coloration. Head: Upper half (vertex, frons, temples partially) more or less obscured. Face, clypeus, lower part of temples, genae, mouthparts (ex-

cept apexes of mandibles) yellow rufous. Scape and pedicel on lower side yellow-rufous, the rest being black. Thorax: Prothorax yellow rufous. Mesoscutum rufous yellow with more or less developed black longitudinal spots on the lobes. Scutellum rufous yellow to black. Mesopleurae rufous yellow, with more or less distributed black coloration. The rest of thorax black. Wing-venation brown. Tegulae rufous yellow. Fore legs yellowish with somewhat obscured tarsi. Middle and hind legs rufous yellow; coxae, femora, tibiae and tarsi more or less obscured. Abdomen: Tergite 1 brown with more or less distributed rufous yellow coloration. Remaining tergites brown yellow.

Measures. Head, width, 0.77-0.84; interocular l., 0.52-0.59; transfacial l., 0.38-0.42; facial l., 0.49-0.56; clypeoantennal l., 0.17-0.21. Antennae: Flagellar segment 1, 0.14; flag. segm. 2, 0.12. Thorax, width at tegulae, 0.63-0.70. Wing: Pterostigma, width, 0.17; length, 0.56-0.59; metacarp, 0.49-0.52; radial abscissa 1, 0.21-0.24; rad. absc. 2, 0.12-0.14; interradianal v., 0.07-0.10. Abdomen: Tergite 1, width at spiracles, 0.14-0.18; length, 0.45-0.52. Length of body: About 3.8 mm.

Male. — Antennae 22-segmented. Tergite 1 less convex, smoother, with more prominent spiracular tubercles. Coloration: Head black brown; clypeus and mouthparts (except apexes of mandibles) yellow. Thorax black. Legs brown yellow and more or less obscured. Abdomen brown black.

General distribution: Palearctic region (Europe—Germany).

Holotype ♀, allotype ♂: Germany. — Kl. Saubernitz (Kr. Bautzen), 2. VI. 1957 (bred from *Cinara pini* on *Pinus silvestris*, lgt. Sedlag); Paratype ♀: Greifswald, 9. VII. 1958, bred from *Cinaria nuda* on *Pinus silvestris*, lgt. Sedlag). ♀ Holotype, ♂ Allotype in author's collection. ♀ Paratype in coll. Sedlag (Greifswald).

Host: *Cinara pini* (L.) (on *Pinus silvestris*, Germany),
Cinaria nuda (Mordw.) (on *Pinus silvestris*, Germany).

13. *P. praevisus* (Gautier & Bonnamour), n. comb.

Aphidius praevisus Gautier & Bonnamour, 1936, Bull. Soc. linn. Lyon 5: 74—75 (descr., Loc.: France; host). — Fähringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 245 (notes). — Fulmek, 1957, Ann. Naturhist. Mus. Wien 61: 147 (sine descr., Loc.: France; host).

This species is easily distinguishable from its congeners by the remarkable shape of ovipositor sheaths that are very slender, only slightly curved upwards and strongly narrowing to the apex. Typical parasite of *Schizolachnus*.

Female. — Head transverse, smooth, shiny, sparsely haired, wider than thorax at tegulae, strongly narrowed behind eyes. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as two diameters of ocellus. Temple as wide as half of transverse eye-diameter. Gena as wide as $\frac{1}{4}$ of longitudinal eye-diameter or as 1.5 of mandible-base. Mandibles little prominent, bidentate—with small tooth before apex. Clypeus transverse, slightly convex, feebly granulate; slightly arched and margined frontally; with deep tentorial pit on each side; separated by shallow groove from face that is smooth, comparatively densely haired. Relative distance

between tentorial pit and eye-margin nearly $\frac{1}{2}$ shorter than relative distance between the pits. Eyes large, nearly hemispherical, strongly prominent laterally. Antennae 16-17-segmented, filiform, as long as about head, thorax and tergite 1 together, situated at the level of eyes-centre; flagellar segment 1 somewhat longer than 2.

Thorax: Mesoscutum (Fig. 32) falling almost vertically to the prothorax, without covering it when viewed laterally; smooth, shiny, sparsely haired. Notaulices distinct in the fore part, deep, slightly crenulate. Praescutellar groove deep, wide, smooth. Scutellum triangular, smooth, shiny, feebly prominent, margined laterally, with sparse hairs. Metanotum with smooth lateral impressions. Meso- and metapleurae smooth and shiny. Propodeum (Fig. 2): Rami of the central carina very prominent, completing large, rounded, central areola and separating not entirely one upper and one lower areolae on each side; discs of areolae smooth, shiny, with some hairs; only upper areolae in the neighbourhood of carinae feebly rugose. Wing (Fig. 60): Pterostigma triangular; metacarp about $\frac{1}{4}$ shorter than length of pterostigma. Radial abscissa 1 about $\frac{1}{4}$ longer than width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate. Tergite 1 (Fig. 23) slender, slightly dilating to the apex beyond spir. tubercles, about three times as long as wide at spiracles, smooth, shiny, with some hairs. Spiracular tubercles situated before the half of tergite, prominent laterally. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 44). Ovipositor sheaths comparatively long, very slender and gradually narrowing to the apex, similarly as ovipositor curved slightly upwards.

Coloration comparatively variable. Head brown to brown black; clypeus yellowish to brown; mandibles (except apexes) yellowish to brown yellow; palpi yellowish to brown yellow. Antennae brown, often scape and pedicel yellowish on lower part. Thorax brown to brown black; pronotum, lower part of mesopleurae, metapleurae and propodeum yellowish to quite brown. Tegulae and wing-venation brown yellow to brownish. Legs yellow (except apical half of tarsi) to brownish, with more or less obscured tinge especially on femora and tibiae. Abdomen: Tergite 1 brown yellow to brownish; following tergites brown yellow to brownish, obscured to the apex. Ovipositor sheaths brown.

Measures. Head, width, 0.45-0.56; interocular l., 0.28-0.35; transfacial l., 0.24-0.28; facial l., 0.31-0.36; clypeoantennal l., 0.10-0.14. Antennae: Flagellar segment 1, 0.09-0.12; flag. segm. 2, 0.09-0.10. Thorax, width at tegulae, 0.38-0.42. Wing: Pterostigma, width, 0.10-0.14; length, 0.38-0.42; metacarp, 0.28-0.31; radial abscissa 1, 0.14-0.16; rad. absc. 2, 0.07-0.09; interradiial v., 0.05-0.07. Abdomen: Tergite 1, width at spiracles, 0.09-0.10; length, 0.28 to 0.31. Length of body: 1.9-2.4 mm.

Male. — Antennae 19-20-segmented. Head and thorax black brown. Palpi and mandibles (except apexes) yellowish. Antennae black brown, lower part of scape and pedicel yellowish. Wing-venation and tegulae brownish. Legs brown yellow, with obscured tinge on coxae, trochanters, femora and tibiae; tarsi obscured except basitarsus. Abdomen: Tergite 1 brown yellow, following tergites brownish. Otherwise like female except sexual differences.

General distribution: Palearctic region (Europe).

Material examined: Czechoslovakia. — Bohemia: Čelákovice, 14. VI. 1957 (bred from *Schizolachnus pineti* on Pinus), lgt. P. Starý; △ Šibeňák, near Jičín, 14. X. 1956 (bred from *Schizolachnus pineti* on Pinus silvestris), lgt. Holman; Jablonné n. Orli., Orlické hory, 25. VII. 1958 (bred from *Schizolachnus pineti* on Pinus), lgt. P. Starý; Rojice, 26. VI. 1959 (bred from *Schizolachnus pineti* on Pinus silvestris), lgt. P. Starý; Černé údolí, Novohradské hory, 21. VII. 1959 (bred from *Schizolachnus pineti* on Pinus silvestris), lgt. P. Starý; Hor. Vltavice, Šumava, 22. VII. 1959 (bred from *Schizolachnus pineti* on Pinus silvestris; on a pine-tree near a coniferous wood), lgt. P. Starý; Pěkná, Šumava, 22. VII. 1959 (bred from *Schizolachnus pineti* on Pinus silvestris, on pine-trees in a peat-moss), lgt. P. Starý; Horská Kvilda, Šumava, 22. VII. 1959 (bred from *Schizolachnus pineti* ? on Pinus uliginosa, in a peat-moss), lgt. P. Starý; Blažejovice, Šumava, 22. VII. 1959 (bred from *Schizolachnus pineti* on Pinus silvestris, wet meadow with some pine-trees), lgt. P. Starý; Čábuze, Šumava, 23. VII. 1959 (bred from *Schizolachnus pineti* on Pinus silvestris, edge of coniferous wood), lgt. P. Starý; Zdoňov, env. Broumov, 7. VII. 1959 (bred from *Schizolachnus pineti* on Pinus silvestris, pine wood), lgt. P. Starý. Moravia: △ Hostýn, Hostýnské hory, VII. 1957 (bred from *Schizolachnus pineti* on Pinus sp., glade in coniferous wood), lgt. P. Starý. — Slovakia: △ Zobor near Nitra, 13. X. 1958 (bred from *Schizolachnus pineti* on Pinus sp., heath in edge of coniferous wood), lgt. P. Starý. — Germany: Greifswald, 9. VII. 1958 (bred from *Lachnidae* sp. — probably *Schizolachnus* — on Pinus silvestris), lgt. Sedlag; Peitz, 2. VI. 1956 (bred from *Lachnidae* sp. — probably *Schizolachnus* — on Pinus silvestris), lgt. Sedlag. — Sweden: ÖG. Simonstorp, 22. V. 1953, lgt. K. J. Heqvist; Upl. Vallentuna, 2. XII. 1954, lgt. K. J. Heqvist.

Habitat: Occurs in coniferous and mixed coniferous-deciduous woods, in open places inside them such as clearings, rides, etc. and in their edges. Typical and common parasite of *Schizolachnus pineti* on Pinus.

Host: 1. Literary data: *Aphidae* sp. (Gautier & Bonnanour, 1936, on Pinus, France),

2. Original data: *Schizolachnus pineti* (F.) (on Pinus silvestris, Czechoslovakia, Germany; on Pinus uliginosa, Czechoslovakia).

Note: Neither the type of this species nor the place of its deposition are known to the author. According to the original description that was carefully studied by the author it is believed that some little aberrations can occur in the large number of specimens. The species is redescribed from the cited material from Europe.

14. *P. silvestris* n. sp.

This species belongs to the group of *Paraphidius*-species that is characterized by stout, wide and slightly curved upwards ovipositor sheaths and by the shape of tergite 1 that is twice as wide at apex as at spiracles. From its relatives it differs by the number of antennal segments, by the shape of tergite 1 and by the coloration.

Female. — Head transverse, smooth, shiny, sparsely haired, wider than thorax at tegulae, strongly narrowed behind eyes. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as 1.5 of ocellus-diameter. Temple as wide as $\frac{1}{3}$ of transverse eye-diameter. Gena as wide as $\frac{1}{3}$ of longitudinal eye-diameter or as 1.5 of mandible-base. Mandibles prominent, bidentate—with small tooth before apex. Clypeus transverse, smooth, shiny, sparsely haired; slightly arched and margined frontally; with deep tentorial pit on each side; separated by shallow groove from face that is smooth, shiny, sparsely haired. Relative distance between tentorial pit and eye-margin less than $\frac{1}{3}$ shorter than relative distance between

the pits. Eyes large, hemispherical, sparsely haired, strongly prominent laterally, slightly convergent to the clypeus. Antennae 18-20-segmented, filiform, somewhat longer than head, thorax and tergite 1 together, situated at the level of eyes-centre. Flagellar segment 1 somewhat longer than 2; apical segment gradually narrowing to the apex.

Thorax: Mesoscutum highly raised above prothorax and covering it when viewed laterally; shiny, very feebly rugose, sparsely haired. Notaulices distinct in the fore part, deep, slightly rugose, effaced on the disc. Praescutellar groove deep, wide, smooth. Scutellum triangular, smooth, shiny, feebly margined laterally. Metanotum with smooth and shiny lateral impressions. Meso- and metapleurae smooth, shiny, sparsely haired. Propodeum (Fig. 12): Rami of the central carina not very strongly developed in the longitudinal part; completing central, pentagonal areola that does not differ by its concavity and declivity from the neighbourhood; separating not entirely one large upper and one lower areolae on each side. Discs of areolae shiny, more or less feebly rugose, central areola almost smooth; with sparse long hairs. Wing (Fig. 63) hyaline. Pterostigma triangular, strongly sclerotized, as long as metacarp. Radial abscissa 1 somewhat shorter than width of pterostigma. Hind wing with complete basal cell. Legs normal.

Abdomen lanceolate. Tergite 1 (Fig. 29) three times as long as wide at spiracles and twice as wide at apex as at spiracles; slender cephalad of spiracles; slightly impressed laterally beyond spiracular tubercles and strongly towards the apex; this part of tergite is comparatively flat, with longitudinal feebly impressions; sparsely haired. Spiracular tubercles little prominent, situated about at the centre of the tergite. Following tergites smooth, shiny, sparsely haired. Genitalia figured (Fig. 41).

Coloration. Head: frons, vertex, occiput and temples from the greatest part black brown. Face, genae, sometimes part of temples, clypeus, mouthparts (except apexes of mandibles) yellow rufous to yellowish. Scape and part of pedicel yellow rufous on lower part; remaining segments black. Thorax: Prothorax rufous yellow. Mesoscutum mostly rufous yellow in the fore part more or less obscured in the hind one. Mesopleurae black, more or less rufous yellow in the fore part. The rest of thorax black. Wing-venation brown, sometimes pterostigma a little whitish at base; cubital and anal veins colourless in the fore part. Tegulae yellowish. Fore legs yellow rufous, tarsi obscured. Middle and hind legs brown, coxae, trochanters, part of femora, base of tibiae and base of basitarsi more or less yellow rufous. Abdomen: Tergite 1 brown, more or less yellowish in the fore part. Following tergites yellowish at the basal half and brown in the apical one, towards the apex of abdomen quite brown. The coloration of abdomen is a little variable, sometimes the yellowish colour is poorly developed and the abdomen is previously brown.

Measures. Head, width, 0.56-0.73; interocular l., 0.35-0.49; transfacial l., 0.28-0.38; facial l., 0.35-0.45; clypeoantennal l., 0.14-0.21. Antennae: Flagellar segment 1, 0.10-0.14; flag. segm. 2, 0.09-0.12. Thorax, width at tegulae, 0.38-0.56. Wing: Pterostigma, width, 0.14-0.21; length, 0.38-0.52; metacarp, 0.38-0.52; radial abscissa 1, 0.12-0.17; rad. absc. 2, 0.10-0.17; interradiial v., 0.07-0.10. Abdomen: Tergite 1, width at spiracles, 0.09-0.12; length, 0.31 to 0.42. Length of body: 2.8-3.8 mm.

Male. — Antennae 22-segmented. Tergite 1 stouter and more parallel-sided than in female. Head quite black brown, clypeus, mouthparts (except apexes of mandibles) yellowish; palpi somewhat brownish. Thorax quite black, only prothorax with traces of yellowish colour in the lower part. Wing-venation brown. Legs: Fore legs yellowish at the base, brown afterwards, tarsi obscured. Middle and hind legs brown, coxae, trochanters, lower part of femora and base of tibia slightly rufous yellow. Abdomen: Tergite 1 brown black, following tergites brown, only the suture between tergites 3 and 4 somewhat yellowish. Otherwise like the female except sexual differences.

General distribution: Palearctic region (Europe—Czechoslovakia).

Holotype ♀, allotype ♂, 3 paratypes ♀♀. Czechoslovakia; Bohemia: Hněvkov, env. Blatná, 5. VI. 1957 (bred from *Cinara* sp. on *Pinus silvestris*, edge of wood, lgt. P. Starý; paratype ♀, Hor. Vltavice, Šumava, 22. VII. 1959, bred from *Cinara* sp. on *Pinus silvestris*, edge of coniferous wood near a meadow, lgt. P. Starý; 2 paratypes ♀♀, Blažejovice, Šumava, 22. VII. 1959, bred from *Cinara* sp. on *Pinus silvestris*; on a pine-tree in edge of wood, lgt. P. Starý). ♀ Holotype, ♂ Allotype and paratypes in author's collection. ♀ Paratype also in coll. Mackauer (Frankfurt/M.).

Habitat: Coniferous woods.

Host: *Cinara* sp. (on *Pinus silvestris*, Czechoslovakia).

SPECIES OF PARAPHIDIUS KNOWN IN THE MALE SEX ONLY

16. *P. szépligetii* n. name for *Aphidius bicolor* Szépligeti, 1898, non Ashmead, 1888.

Aphidius bicolor Szépligeti, 1898, Term. Füzet. 21: 395, 407 (♂ descr., Loc.: Croatia, Buccari). — Szépligeti, 1904, in Wytzman Genera Insectorum Fasc. 22: 186 (sine descr., Loc.: Croatia) (Preocc. by Ashmead, 1888, Proc. U. S. Nat. Mus. 11: 658).

This species is known in the holotype-male only and from this reason it was not included in the key. The original description is rather incomplete and the redescription seems to be necessary.

The name *Aphidius bicolor* is preoccupied by Ashmead. According to the description (Smith, 1944) the Ashmead's species is quite different from that described by Szépligeti; the latter represents, therefore, a homonym and is named "*szépligetii*" by the present author. As "*Aphidius bicolor* Szépligeti" was classified as a member of the genus *Aphidius* in the past, his membership in the genus *Paraphidius* is being important to notice.

Male (Holotype). — Head transverse, smooth, shiny, somewhat wider than thorax at tegulae, sparsely haired, strongly narrowed behind eyes. Occiput distinctly margined. Relative distance between fore and hind ocelli as long as two diameters of ocellus. Temple somewhat narrower than transverse eye-diameter. Gena as wide as about $\frac{1}{3}$ of longitudinal eye-diameter or as two mandible bases. Mandibles bidentate—with small tooth, before apex. Clypeus oval, shiny, sparsely haired, slightly margined frontally, somewhat

prominent, with deep tentorial pit on each side; separated by shallow groove from face that is smooth, shiny, sparsely haired. Eyes of middle size, prominent laterally, slightly convergent to the clypeus. Antennae broken (22-segmented after orig. description), filiform, situated about at the level of eyes-centre; flagellar segment 1 only a little longer than 2.

Thorax: Mesoscutum smooth, shiny, comparatively vertically falling to prothorax, without covering it when viewed laterally. Notaulices deep in the fore part, slightly rugose, nearly effaced on the disc. Praescutellar groove deep, wide, smooth. Scutellum triangular, smooth, shiny, sparsely haired, slightly prominent, nearly unmarginated. Metanotum with smooth to feebly rugose lateral impressions. Meso- and metapleurae smooth to slightly rugose, shiny. Propodeum (Fig. 15): Rami of the central carina, completing large, central, wide areola; separating not entirely one large upper and one lower areolae on each side. Central areola only slightly concave and not very distinguishing from its neighbourhood; in the centre near the insertion of tergite 1 with two little prominent longitudinal carinae. Discs of areolae smooth, shiny, somewhat rugose around spiracles, comparatively densely haired. Wings hyaline, with characters of the genus. Pterostigma triangular, strongly sclerotized, longer than metacarp; radial abscissa 1 somewhat longer than width of pterostigma; radial absc. 2 shorter than 1 and about as long as the interradiial vein. Hind wing complete basal cell. Legs normal.

Abdomen rounded at apex, somewhat longer than head and thorax together. Tergite 1 ((Fig. 25) nearly parallel-sided, more than twice as long as wide at spiracles, slightly convex, slightly compressed beyond spir. tubercles, with 2 little prominent rounded tubercles at the hind part; slightly granulate-rugose, sparsely haired. Spiracular tubercles very little prominent, situated before the centre of the tergite. Remaining tergites smooth, shiny, sparsely haired.

Coloration. Head brown; face, mouthparts (except apexes of mandibles) yellow. Antennae dark brown, scape and pedicel on lower part yellowish. Prothorax yellow orange. Mesoscutum orange yellow, in the neighbourhood of tegulae slightly obscured. Scutellum coloured similarly as mesoscutum but more obscured. Mesopleurae orange brown, lightened in the centre, obscured in the lower part. Metapleurae orange brown. Propodeum brown. Wing-venation yellow brown. Tegulae yellow. Fore legs yellow orange, tarsi obscured. Middle and hind legs brown yellow, femora, tibiae and tarsi obscured. Abdomen: Tergite 1 yellow orange, following tergites red brown, somewhat darker than propodeum.

Measures. Head, width, 0.66; interocular l., 0.49; transfacial l., 0.35; facial l., 0.49; clypeoantennal l., 0.21. Antennae: Flagellar segment 1, 0.12; flag. segm. 2, 0.10. Thorax: Width at tegulae, 0.63. Wing: Pterostigma, width, 0.17; length, 0.52; metacarp, 0.42; radial abscissa 1, 0.21; rad. absc. 2, 0.14; interradiial v., 0.14. Abdomen: Tergite 1, width, 0.17; length, 0.42. Length of body: About 2.6 mm.

General distribution: Palearctic region (Europe—Yugoslavia).

Material examined: Holotype — ♂, labeled „Buccari, VI. 17, Biró, Aphidius bicolor m.;

Host: Unknown.

Note: Holotype deposited in Magyar Nemzeti Muzeum at Budapest. Condition good except broken antennae (left—9-segm., right—14-segm.)

SPECIES OF PARAPHIDIUS UNSATISFACTORILY DESCRIBED
AND UNKNOWN TO THE AUTHOR

P. aterrimus (F a h r i n g e r), n. comb.

Coelonotus aterrimus Fahringer, in Schimitschek, 1935, Zbl. Forstw. 61: 215 ("o" descr., Loc.: Austria; host). — Schimitschek, 1936, Z. ang. Ent. 22: 564 (sine descr., Loc.: Austria; host). — Fahringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 243 (♂ descr., Loc.: Austria; host). — Fulmek, 1957, Ann. Naturhist. Mus. Wien 61: 172, 173 (sine descr., Loc.: Austria, Hungary; hosts).
Aphidius aterrimus (Fahringer): Fahringer, in Seitner, 1936, Zbl. Forstw. 62: 45—46 ("o" descr., Loc.: Austria; host).

The contemporary situation in the study of the validity of this species is not clear. It was described twice, in Zbl. Forstw. 61: 215 and in Zbl. Forstw. 62: 45-46 by F a h r i n g e r; both descriptions differ in some ways, however, from each other; moreover, neither the first one nor the second include the sex—it is probably a missprint. In 1937 this species was placed by F a h r i n g e r in the key of males (l.c.). It would be possible to conclude from this fact that the species was originally described from the male. It must be added, however, that more host-species are given in descriptions and it seems to be, therefore, probable, that more specimens were bred, too.

In 1958 the author revised two female-spns. (deposited in "Institut f. Forstentomologie u. Forstschutz, Hochschule f. Bodenkultur", Wien) that were designed as "types". Both specimens have the same data as those given in the original description but differ from the latter in many ways (e.g. in having 14-segmented antennae) and they represent females of *Metaphidius trioxyformis* (Starý & Sedlag) (see l.c.).

Even though we admit that the male was originally described, it is necessary to note that probable later date of the arranging of females is quite incorrect. It must be added that several species of parasites belonging to *Paraphidius* may be obtained from one colony of Lachnids. This is, as it seems, the case of F a h r i n g e r's *Aphidius aterrimus*. The problem can be solved on the ground of the study of all the "types" if they still exist and especially of those, which correspond in general to the original description.

There is in each case to keep the designation of the cited females as the types of *Aphidius aterrimus* as an error.

Host: *Cinara neubergi* (Arn.) (Schimitschek, 1935, 1936, Austria; Fahringer, 1937; Fulmek, 1957).

Cinara pini (L.) (Fulmek, 1957, Hungary).

Cinaria cembrae (Chol.) (Seitner, 1936, on *Pinus montana*, Austria; Fulmek, 1957).

NOMEN DUBIUM

Aphidius varius Nees

Aphidius varius Nees, 1834, Hym. Ichn. aff. Mon. 1: 21 (♀♂ descr., Loc.: Germany; host). — ? Wesmael, 1835, Nouv. Mém. Acad. Sci. Bruxelles 9: 78 (♀ descr., Loc.: Belgium). — ? Ratzeburg, 1852, Ichn. d. Forstins. 3: 62 — ? Polizu, 1932, Bull. Mus. Ist. nat. Chisinău 4: 42, 44 (sine descr., Loc.: Rumania; host). — ? Telenga, 1950, Nautsh. Trudy Inst. ent. phytopath. AN Ukr. SSR 2: 203 (sine descr., Loc.: Rumania; host).

- Aphidius (Coelonotus) varius* Nees: Thomson C. G., 1895, Opusc. entomologica 20: 2335 (♀ descr., Loc.: Sweden).
- Coelonotus varius* (Nees): Szépligeti, 1904, in Wytsman Genera insectorum Fasc. 22: 185 (sine descr., Loc.: Germany). — Fahringer, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 241—243 (♀♂ descr., Loc.: Germany, host). — Fulmek, 1957, Ann. Naturhist. Mus. Wien 61: 159, 167, 174, 191, 194, 198 (sine descr., Loc.: Germany, Austria, Rumania; host).

The original Nees's description is too incomplete and probably, as it seems from the host records that include several species of aphids, it represents a "collective" species. All the other authors knew the original description only and classified the species from various points of view. According to the original description the species seems to be identical with any of Haliday's species. As the type is lost the author believes that it is the best to keep this species as "nomen dubium" for the future.

Host (Literary data for the "species" s. lat.):

- Aphis* sp. s. Ratzburg (Ratzburg, 1852, Germany; Fulmek, 1957).
- Cerosipha frangulae* (Kltb.) (Fulmek, 1957, Germany).
- Cinaria taeniata* (Koch) (Fulmek, 1957, Austria)
- Cinaropsis pilicornis* (Htg.) (Fahringer, 1937; Fulmek, 1957)
- Macchiatiella rhamni* (B. d. F.) (Fulmek, 1957, Germany)
- Medoralis pomi* (Deg.) (Polizu, 1932, Rumania; Fulmek, 1957).

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CATALOGUE OF PARAPHIDIUS-SPECIES OF THE WORLD

As the genus *Paraphidius* Starý represents a part of the new classification of the subfamily *Aphidiinae* and includes numerous species that were described from various countries and classified under other genera or subgenera of *Aphidiinae* (under *Protaphidius* Ashm. auct., etc.) it is necessary to publish a catalogue of the species of the world that are to be included in this genus.

abietis (Marshall), n. comb.

Aphidius abietis Marshall, 1896, in André Spec. Hym. Europe d'Alg. 5: 565-566.

Distribution: Palearctic region (Europe).

albiflagellaris n. sp.

Paraphidius albiflagellaris n. sp.

Distribution: Palearctic region (Europe).

? *aterrimus* (Fahringer), n. comb.

Coelonotus aterrimus Fahringer, 1935, in Schimitschek, 1935, Zbl. ges. Forstw. 61: 215.

Distribution: Palearctic region (Europe).

bicolor (Ashmead) n. comb.

Aphidius bicolor Ashmead, 1889 (1888), U.S. Nat. Mus. Proc. 11: 658

Aphidius pinaphidis Ashmead, 1891, Canad. Ent. 23: 6

Distribution: Nearctic region.

- californicus** (A s h m e a d)
Aphidius californicus A s h m e a d, 1889 (1888), U.S. Nat. Mus. Proc. 11: 660
 Distribution: Nearctic region.
- chloratus** (T e l e n g a), n. comb.
Aphidius chloratus T e l e n g a, 1953, Trudy Inst. Zoologii i Parazitologii AN Uzbekoj SSR 1: 171-172
 Distribution: Palearctic region (Central Asia).
- cupressobii** n. sp.
Paraphidius cupressobii n. sp.
 Distribution: Palearctic region (Europe).
- gillettei** (G a h a n), n. comb.
Aphidius gillettei G a h a n, 1911, Md. Agr. Expt. Sta. Bul. 152: 171
 Distribution: Nearctic region.
- grossus** (F a h r i n g e r), n. comb.
Coelonotus grossus F a h r i n g e r, 1937, Festschr. 60. Geb. E. Strand, Riga 3: 244-245
 Distribution: Palearctic region (Europe).
- infulatus** (H a l i d a y), n. comb.
Aphidius infulatus H a l i d a y, 1834, Ent. Mag. 2: 96
 Distribution: Palearctic region (Europe).
- inouyei** (W a t a n a b e), n. comb.
Aphidius inouyei W a t a n a b e, 1941, Ins. Mats. Sapporo 15: 106
 Distribution: Palearctic region (Japan).
- japonicus** (A s h m e a d), n. comb.
Aphidius japonicus A s h m e a d, 1906, U.S. Nat. Mus. Proc. 30: 189
 Distribution: Palearctic region (Japan).
- jezoensis** (W a t a n a b e), n. comb.
Aphidius jezoensis W a t a n a b e, 1941, Ins. Mats. Sapporo 15: 108
 Distribution: Palearctic region (Japan).
- juniperaphidis** (G a h a n), n. comb.
Aphidius juniperaphidis G a h a n, 1911, Md. Agr. Expt. Sta. Bul. 152: 174
 Distribution: Nearctic region.
- juniperorum** n. sp.
Paraphidius juniperorum n. sp.
 Distribution: Palearctic region (Europe).
- kônoi** (W a t a n a b e), n. comb.
Aphidius kônoi W a t a n a b e, 1941, Ins. Mats. Sapporo 15: 106
 Distribution: Palearctic region (Japan).
- lachnivorus** (A s h m e a d), n. comb.
Aphidius lachnivorus A s h m e a d, 1906, U.S. Nat. Mus. Proc. 30: 189
 Distribution: Palearctic region (Japan).
- laricis** (H a l i d a y), n. comb.
Aphidius laricis H a l i d a y, 1834, Ent. Mag. 2: 97
 Distribution: Palearctic region (Europe, Japan).
- laticeps** (G a h a n), n. comb.
Aphidius laticeps G a h a n, 1926, U.S. Nat. Mus. Proc. 70: 2
 Distribution: Oriental region (Tchaj-wan).

- macrogaster** Ashmead, n. comb.
Aphidius macrogaster Ashmead, 1891, Canad. Ent. 23: 5
 Distribution: Nearctic region.
- maculolachni** n. sp.
Paraphidius maculolachni n. sp.
 Distribution: Palearctic region (Europe).
- nigrovarius** (Provancher), n. comb.
Aphidius nigrovarius Provancher, 1888, Addit. Corr. Faune Ent. Canada Hym., p. 396
 Distribution: Nearctic region.
- piceaecollis** n. sp.
Paraphidius piceaecollis n. sp.
 Distribution: Palearctic region (Europe).
- pictus** (Haliday), n. comb.
Aphidius pictus Haliday, 1834, Ent. Mag. 2: 85
 Distribution: Palearctic region (Europe).
- pini** (Haliday), n. comb.
Aphidius pini Haliday, 1834, Ent. Mag. 2: 96
 Distribution: Palearctic region (Europe).
- pinicollis** n. sp.
Paraphidius pinicollis n. sp.
 Distribution: Palearctic region (Europe).
- ponderosae** (Muesebeck), n. comb.
Aphidius (Protaphidius) ponderosae Muesebeck, 1958, Ent. News 69: 141-143
 Distribution: Nearctic region.
- praevisus** (Gautier & Bonnamour), n. comb.
Aphidius praevisus Gautier & Bonnamour, 1936, Bull. Soc. linn. Lyon N.S. 5: 74-75
 Distribution: Palearctic region (Europe).
- prociphalii** (Ashmead), n. comb.
Aphidius procephali Ashmead, 1889 (1888), U.S. Nat. Mus. Proc. 11: 659
 Distribution: Nearctic region.
- scorpinicus** (C. F. Smith), n. comb.
Aphidius (Protaphidius) scorpinicus C. F. Smith, 1944, Ohio State Univ. Contr. Zoo. Ent. 6: 45
 Distribution: Nearctic region.
- silvestris** n. sp.
Paraphidius silvestris n. sp.
 Distribution: Palearctic region (Europe).
- szépligetii** n. name for *bicolor* Szépliget, 1898 non Ashmead, 1889 (1888)
Aphidius bicolor Szépliget, 1898, Term. Füzet. 21: 365, 407. (Pre-occ.)
- takomaensis** (C. F. Smith), n. comb.
Aphidius (Protaphidius) takomaensis C. F. Smith, 1944, Ohio State Univ. Contr. Zoo. Ent. 6: 46
 Distribution: Nearctic region.

unilachni (Gahan), n. comb.

Aphidius unilachni Gahan, 1926, U.S. Nat. Mus. Proc. 70: 1

Distribution: Oriental region (Tchaj-wan).

varigatus (C. F. Smith), n. comb.

Aphidius (Protaphidius) varigatus C. F. Smith, 1944, Ohio State Univ.

Contr. Zoo. Ent. 6: 47

Distribution: Nearctic region.

xanthotherus (C. F. Smith), n. comb.

Aphidius (Protaphidius) xanthotherus C. F. Smith, 1944, Ohio State

Univ. Contr. Zoo. Ent. 6: 48

Distribution: Nearctic region.

Nomen dubium:

Aphidius varius Nees, 1834, Hym. Ichn. aff. Mon. 1: 21

Distribution: Palearctic region (Europe).

Резюме

В данной работе автор производит ревизию видов европейских наездников-афидиид (*Hymenoptera*, сем. *Braconidae*) рода *Paraphidius* Starý, которые являются паразитами тлей сем. *Lachnidae*. Для следующих видов даны новоописания: *P. abietis* (Marsh.), *P. grossus* (Fahr.), *P. infultatus* (Hal.), *P. laricis* (Hal.), *P. pictus* (Hal.), *P. pini* (Hal.), *P. praevisus* (Gaut. & Bonn.), *P. szépligetii* n. name (для преокк. *bicolor*).

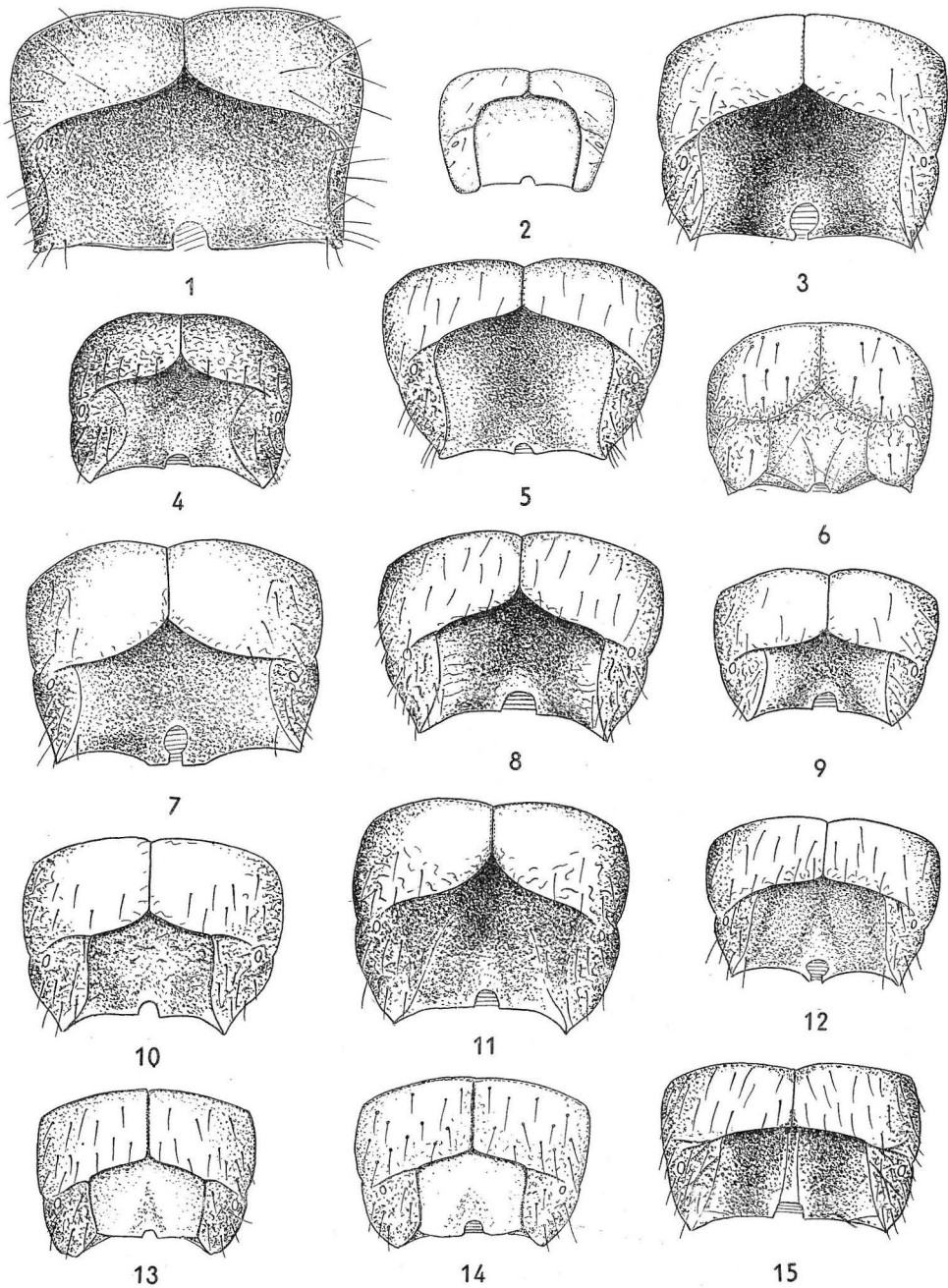
Им также описан ряд видов, новых для науки; это следующие: *P. albi-flagellaris* sp. n., *P. cypressobii* sp. n., *P. juniperorum* sp. n., *P. maculolachni* sp. n., *P. piceaecollis* sp. n., *P. pinicollis* sp. n., *P. silvestris* sp. n.

Как заключение дан обзор видов рода *Paraphidius* всего мира.

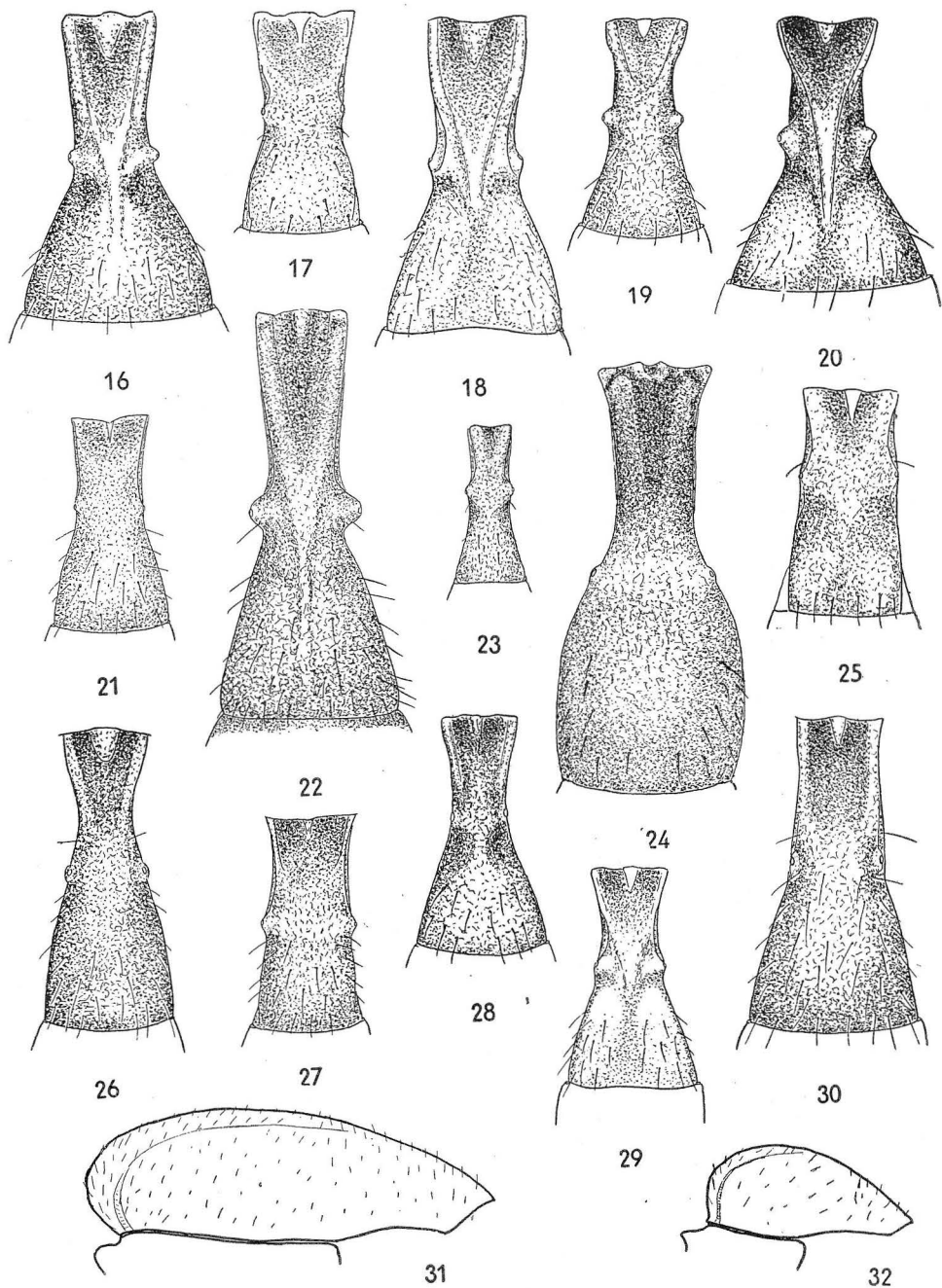
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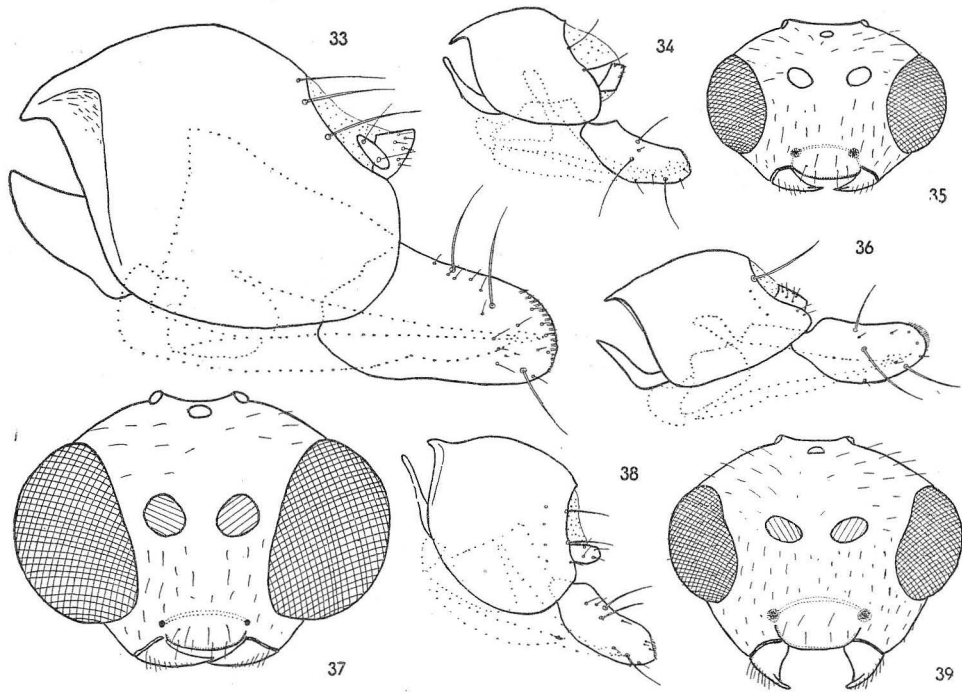
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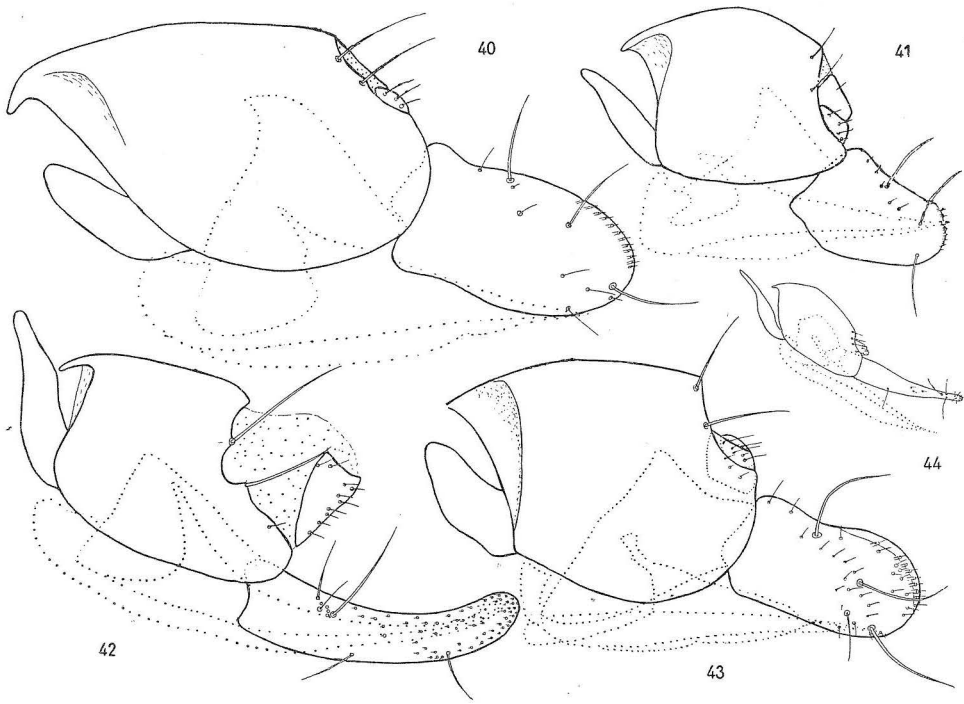
Procoxae of female. 1. *P. grossus* (Fahr.); 2. *P. praevisus* (Gaut. & Bonn.); 3. *P. pini* (Hal.); 4. *P. infulatus* (Hal.); 5. *P. pictus* (Hal.); 6. *P. maculolachni* n. sp.; 7. *P. abietis* (Marsh.); 8. *P. laricis* (Hal.); 9. *P. juniperorum* n. sp.; 10. *P. pinicollis* n. sp.; 11. *P. albiflagellaris* n. sp.; 12. *P. silvestris* n. sp.; 13. *P. piceacollis* n. sp.; 14. *P. cupressobii* n. sp.; 15. *P. szépligetii* n. name (male).



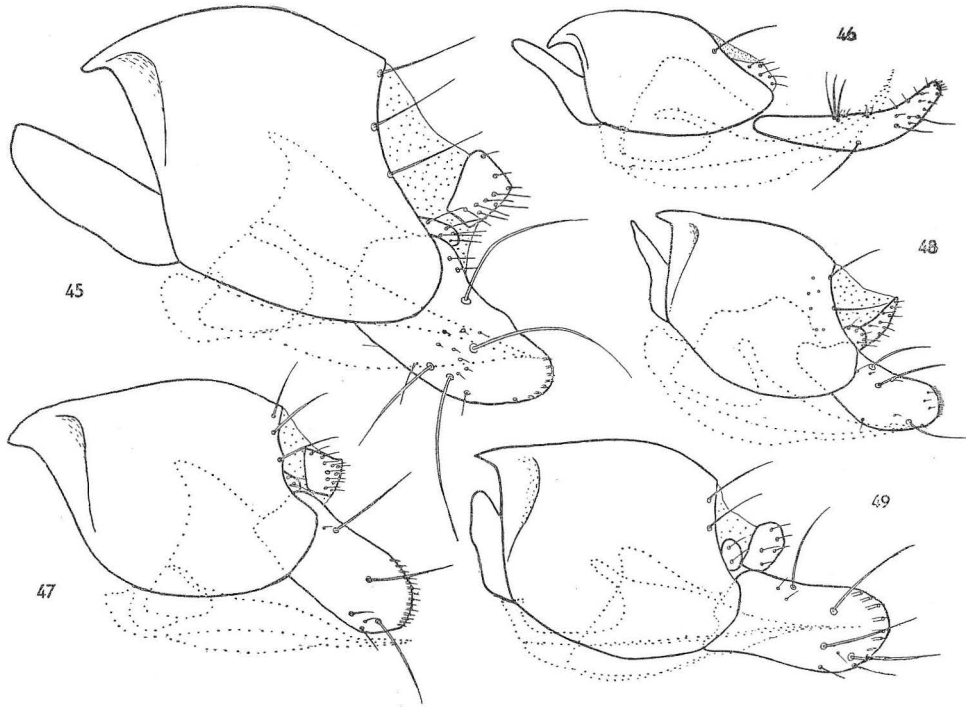
First tergite of female. 16. *P. albiflagellaris* n. sp.; 17. *P. maculolachni* n. sp.; 18. *P. pini* (Hal.); 19. *P. juniperorum* n. sp.; 20. *P. abietis* (Marsh.); 21. *P. cupressobii* n. sp.; 22. *P. grossus* (Fahr.); 23. *P. praevisus* (Gaut. & Bonn.); 24. *P. pictus* (Hal.); 25. *P. szépligetii* n. name (male); 26. *P. laricis* (Hal.); 27. *P. piceaecollis* n. sp.; 28. *P. infulatus* (Hal.); 29. *P. silvestris* n. sp.; 30. *P. pinicollis* n. sp.; 31. *P. pictus* (Hal.), mesoscutum, lateral view; 32. *P. praevisus* (Gaut. & Bonn.), mesoscutum, lateral view.



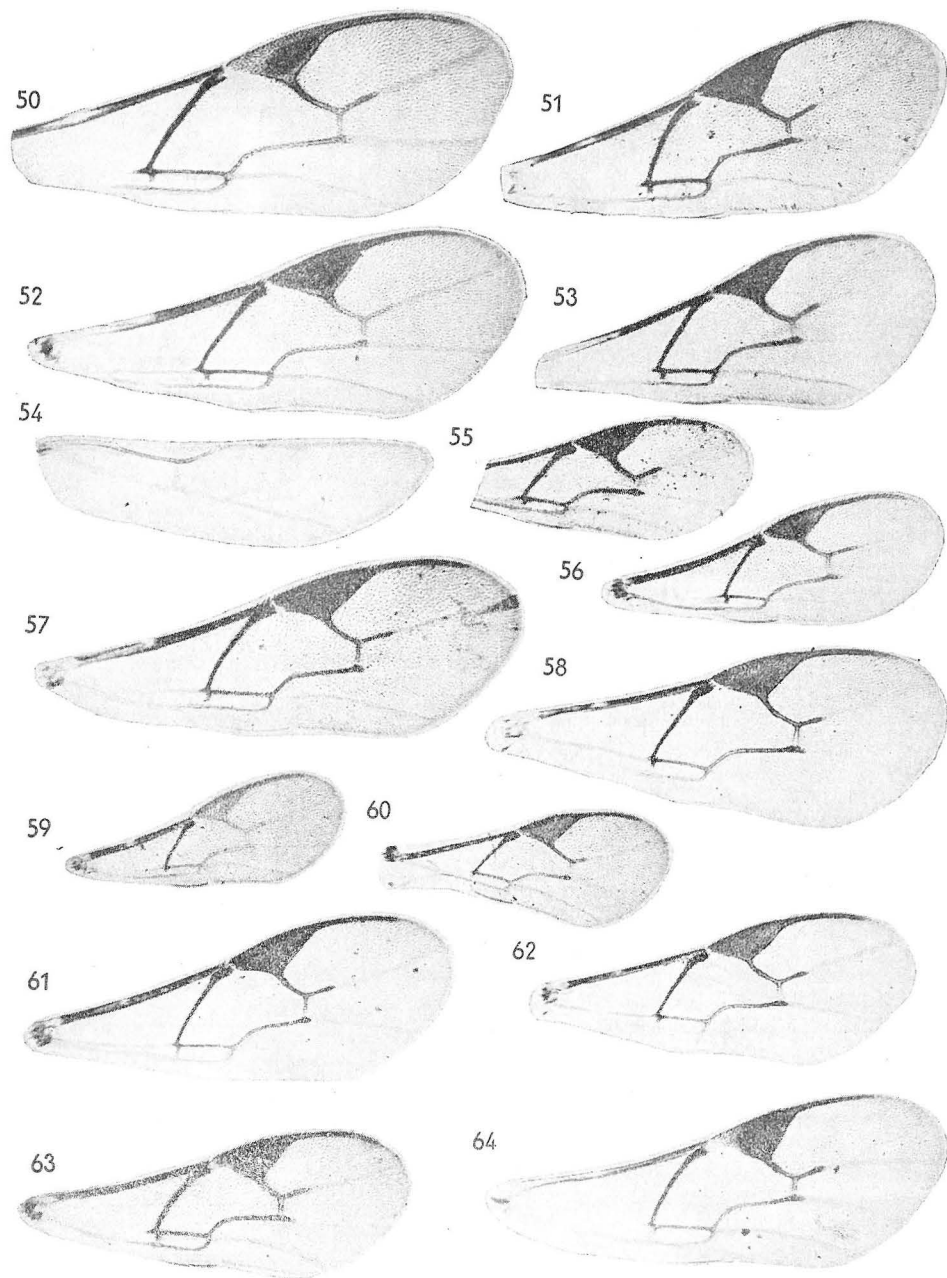
33. *P. pini* (Hal.), female genitalia; 34. *P. cupressobii* n. sp., female genitalia; 35. *P. cupressobii* n. sp., head, frontal view; 36. *P. piceaecollis* n. sp., female genitalia; 37. *P. albi-flagellaris* n. sp., head, frontal view; 38. *P. maculolachni* n. sp., female genitalia; 39. *P. maculolachni* n. sp., head, frontal view.



Female genitalia: 40. *P. albiflagellaris* n. sp.; 41. *P. silvestris* n. sp.; 42. *P. pictus* (Hal.);
43. *P. abietis* (Marsh.); 44. *P. praevisus* (Gaut. & Bonn.).



Female genitalia: 45. *P. grossus* (F a h r.); 46. *P. laricis* (H a l.); 47. *P. infulatus* (H a l.);
48. *P. pinicollis* n. sp.; 49. *P. juniperorum* n. sp.



Fore wing: 50. *P. grossus* (F a h r.); 51. *P. abietis* (M a r s h.); 52. *P. albiflagellaris* n. sp.; 53. *P. infulatus* (H a l.); 54. *P. albiflagellaris* n. sp. (hind wing); 55. *P. juniperorum* n. sp.; 56. *P. maculolachni* n. sp.; 57. *P. pictus* (H a l.); 58. *P. pinicollis* n. sp.; 59. *P. cypressobii* n. sp.; 60. *P. praevisus* (G a u t. & E o n n.); 61. *P. laricis* (H a l.); 62. *P. piceaeccollis* n. sp.; 63. *P. silvestris* n. sp.; 64. *P. pini* (H a l.).